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ABSTRACT

These materials in agribusiness management for the Connecticut Vocational Agriculture Curriculum were designed for use in the following areas: Animal Science; Plant Science; Agricultural Mechanics; and Natural Resources and Aquaculture. Each unit of this competency-based guide contains title of unit, unit length, grade level, objectives, teacher activities, student activities, evaluation procedures, outline of relationship and application to other units, resources, bibliography, and a form for individual teacher unit review. The 10 units of instruction are as follows: (1) starting and establishing your own business; (2) principles of agribusiness; (3) money management; (4) human relations in agribusiness; (5) written and oral communication; (6) sales and selling in agriculture; (7) advertising agricultural products and services; (8) agribusiness retail procedures; (9) computers in agriculture; and (10) agriculture in the international marketplace. An appendix lists related jobs titles and relevant competencies. (NLA)

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AGRIBUSINESS MANAGEMENT

THE CONNECTICUT VOCATIONAL AGRICULTURE CURRICULUM

Prepared by
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NORTH WINDHAM, CONNECTICUT

Prepared for

CONNECTICUT STATE DEPARTMENT OF EDUCATION
DIVISION OF VOCATIONAL, TECHNICAL AND ADULT EDUCATION
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May, 1990

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PREFACE

These materials in Agribusiness Management for the Connecticut Vocational Agriculture Curriculum have been designed for use in the Connecticut Regional Vocational Agriculture Centers. These centers are multi-staffed with three or more teachers of Vocational Agriculture who have each developed an expertise in one or more of the major areas of agriculture: Animal Science, Plant Science, Agricultural Mechanics, and Natural Resources and Aquaculture.

A full program of Vocational Agriculture Education consists of four years of enrollment. In the first two years, students usually enroll in exploratory units of study in each of the four major areas. Emphasis in each area is on the development of fundamental skills and a general understanding of an appreciation for the field of Vocational Agriculture. In addition to their classroom studies, students are encouraged to develop leadership talent through involvement in the FFA chapter and to find a practical application of units studied through the supervised agricultural experience program.

In the third and fourth year of enrollment, it is recommended that students elect special units of study which best prepare them to meet their individual goals and objectives. These materials in Agribusiness are intended to respond to the needs of students at the junior and senior level interested in acquiring a better understanding of agribusiness principles. It is recommended that all students begin their exploration into the field of agribusiness management with the study of the first two units--"Starting and Establishing Your Own Business" and "Principles of Agribusiness." Thereafter, the units may be studied selectively and in a sequence of instruction left to the discretion of certified teachers, administrators, and consulting committee members in each center.

These materials in agribusiness management are new and represent the collaborative efforts of certified teachers of Vocational Agriculture in Connecticut Regional Vocational Agriculture Centers. While each unit was authored by an individual teacher, it was critiqued by all and revised and edited to produce a common format. The bibliographies are extensive but not exhaustive. It is hoped that teachers using these materials will note individual unit strengths and weaknesses on the evaluation form provided. These evaluations will be a valuable source of information for future curriculum revisions.

This curriculum is competency-based. For this reason, each unit of instruction includes a section entitled "Related Job Titles and Relevant Competencies." These job titles and relevant competencies were identified and validated in the National Agriculture Occupations Competency Study conducted by the U. S. Department of Health, Education, and Welfare in 1978. For ease of reference and use, the agribusiness units are printed on pink paper and the "Related Job Titles and Relevant Competencies" are reproduced on white paper. The latter materials have two page numbers. They are numbered consecutively at the top to indicate the order in which they appear in the agribusiness manual. The number at the bottom refers to the page number in the original source, namely the National Agriculture Occupations Competency Study.

ACKNOWLEDGMENTS

The Project Director and Project Assistant wish to express their appreciation to those who have contributed to the success and completion of the curriculum. A sincere thank you is extended to the curriculum writers for their conscientious efforts throughout the project. Special recognition is due to Dr. David Calchera, Paula Colen and Ginny Gardner, EASTCONN, whose knowledge of project grant procedures and expert skills made the completion of the project possible.

Special appreciation is extended to Mr. Roger Lawrence, State Consultant, Vocational Agriculture, Mr. Milton Natusch, FFA Executive Secretary, Dr. Valerie Dunn, Project Officer, and Ms. Leslie M. Averna, Chief, Bureau of Vocational Services, for their involvement in the initiation and direction of the study. We would also like to extend our gratitude to Janet Snow for her efficiency and expertise in entering the curriculum on the word processor. Her efforts will make future revisions of the curriculum much easier.

Finally, to the teachers of vocational agriculture in Connecticut, for whom this curriculum is intended, appreciation is extended for their cooperation in providing input and support throughout the study.

Dr. Alfred J. Mannebach
Project Director

Renate A. Seitz
Project Assistant

TABLE OF CONTENTS

AGRIBUSINESS MANAGEMENT CURRICULUM UNITS

Starting and Establishing Your Own Business 1

Principles of Agribusiness 11

Money Management in Agriculture 20

Human Relations in Agribusiness 31

Writen and Oral Communication 39

Sales and Selling in Agriculture 45

Advertising Agricultural Products and Services 53

Agribusiness Retail Procedures 62

Computers in Agriculture 74

Agriculture in the International Marketplace 87

RELATED JOB TITLES AND RELEVANT COMPETENCIES

Dairy Farm Manager	49	1
Manager of Grain, Fertilizer, Feed and Seed Sales Business	229	10
Pet Shop Worker	273	33
Partsman in Farm Machinery Dealership	306	38
Farm Equipment Salesperson	319	42
Floriculture - Delivery Person	415	45
Floriculture - Salesperson	417	47
Floriculture - Flower Shop Manager	423	49
Retail Landscape and Garden Center Salesperson	442	51
Nursery Salesperson - Retail	453	55
Forestry Technician	483	57
Land-Use Planning Aide	487	61
Campground Manager	501	64
Hunting and Fishing Guide	511	66
Conservation Officer	528	69
Forest Insect Ranger	570	72

AGRIBUSINESS MANAGEMENT CURRICULUM

UNIT: Starting and Establishing Your Own Business

LENGTH: Four weeks. Select areas of content according to student needs and time available.

WHEN TAUGHT: Grade 11 or 12

OBJECTIVES: The student will be able to:

1. Identify the personal attributes necessary to operate your own business.
2. Identify the management skills necessary to operate a business.
3. Discuss the background and experience needed to operate a business.
4. Describe the possible motives for wanting to operate a business.
5. Describe the advantages and disadvantages of owning a business.
6. Determine the need for a particular type of business.
7. Complete a community analysis.
8. Analyze existing businesses.
9. Determine the feasibility for a particular type of business.
10. Identify facilities needed and outline the general location requirements for different types of businesses.
11. Evaluate specific locations for businesses.
12. Prepare a financial plan for a business.
13. Determine possible sources of financing.
14. Evaluate the cost of borrowing.
15. Develop a marketing plan.
16. Describe the process of setting up a particular type of business.
17. Describe basic principles of business layout.
18. Establish goals for a particular type of business.
19. Complete different types of financial analyses.
20. Develop a plan of growth for a particular type of business.

RELATED JOB TITLES AND RELEVANT COMPETENCIES:

Manager of Grain, Fertilizer, Feed and Seed Sales Business	229:1(a-j), 230:2(a,b), 234:19(a-h), 234:20(a-g), 234:21(a-d), 235:22(a-d), 235:23(a-k), 235:24(a-e), 235:25(a,b)

CONTENT:

- I. The decision-making process
    - A. Conduct a self-evaluation
        - 1. Personal attributes
        - 2. Related background and experience
        - 3. Financial resources
        - 4. Management skills
            - a. self-motivation
            - b. financial management skills
            - c. accounting and record-keeping skills
            - d. marketing and advertising skills
            - e. interpersonal relationship skills
            - f. understanding of business law and regulations
        - 5. Motives
            - a. desire for profit
            - b. opportunity to apply skills and experience
            - c. desire to "be your own boss" (autonomy)
    - B. Consider the advantages and disadvantages of owning your own business
        - 1. Advantages
            - a. unlimited earning power
            - b. freedom of action, decision making power, "being your own boss"
            - c. personal satisfaction and sense of accomplishment
        - 2. Disadvantages
            - a. financial risk
            - b. stress from the responsibilities
            - c. time and effort required to make a profit
- II. The planning process
    - A. Developing the concept of the business

1. What kind of business?

2. How will it be different from other businesses in the same field?

3. What products or services will it provide?

4. What form of business organization?

5. Full or part-time?

B. Determine the need for your business

1. Analyze the demand for your product or service

   a. new or innovative product or service
   b. trends in demand
   c. estimate of profitability

2. Analyze the community

   a. population--age groups, growth potential
   b. employment--average income, types of employment
   c. access--customer and suppliers, traffic patterns
   d. development trends--business or residential
   e. size of planned market area
   f. local regulations and zoning restrictions

3. Analyze the competition

   a. number of similar businesses
   b. similarities and differences to your plans
   c. present share of market
   d. type of customers
   e. strengths and weaknesses--price, location, appearance, business hours, advertising

C. Complete a feasibility study

1. Determine the equipment needed

2. Determine the necessary start-up inventory

3. Determine the employees needed

4. Estimate the required financing

   a. start-up costs
   b. recurring costs
   c. ways to reduce costs
   d. time required to reach profitability
   e. dependence on the income

    5. Determine facility size and a possible location

        a. determine general requirements of type of business
        b. investigate general locations and narrow down to more specific locations
        c. evaluate specific locations on the basis of your needs

    6. Meet with an accountant and/or lawyer to answer financial and legal questions

D. Consider advantages and disadvantages of buying an established business

    1. Advantages

        a. established market and customers
        b. set-up for operation
        c. less planning time required

    2. Disadvantages

        a. high cost of purchase
        b. possible hidden reasons previous owner wants to sell
        c. may not suit buyer's plans

III. The financial strategy

A. Prepare a financial plan

    1. Determine capital needs

    2. Figure the costs of building, remodeling, and "setting up" your business

    3. Prepare a cash flow projection

    4. Figure a salary for owner

B. Obtain needed financing

    1. Consolidate owner's capital assets

        a. cash, savings, sale of personal property
        b. borrow against personal assets--insurance policies, home equity

    2. Apply for business loans

        a. types of loans
        b. sources of loans
        c. the cost of borrowing
        d. the application process

IV. The start-up

  A. Develop a marketing plan

    1. Determine business's target area and customers
    2. Plan the image of the business
    3. Contact potential buyers
    4. Arrange for shipping and packaging
    5. Make plans for advertising and promotion
    6. Compare suppliers

  B. Meet with an accountant and lawyer to complete financial and legal plans

    1. Preliminary tax planning
    2. Apply for a tax number
    3. Apply for necessary permits and licenses
    4. Purchase liability and loss insurance
    5. Apply for a 'DBA' (doing business as)

  C. Set up

    1. Buy or lease a place of operation
    2. Place orders for equipment
    3. Make arrangements with suppliers, shippers
    4. Arrange utility hook-up
    5. Set up accounting and record-keeping system
    6. Make arrangements for advertising and promotion

  D. Develop the physical layout

    1. Plan for efficiency
    2. Plan to maximize sales

V. The progress evaluation

  A. Set goals and objectives

  B. Compare progress to pre-set objectives

- C. Keep records to discover areas of unusual profit or loss
- D. Complete regular financial analyses to monitor progress
  - 1. Income statement--measure of profitability
    - a. net profit margin
    - b. return on equity
    - c. gross profit margin
    - d. percentage income statement
  - 2. Balance sheet
- E. Monitor progress and adjust to meet changing needs

VI. The plan for growth and development

- A. Develop a growth plan
- B. Take advantage of opportunities
- C. Invest a percentage of the profits into the business
- D. Expand product line or services
- E. Open additional branches or outlets

TEACHER ACTIVITIES:

1. Use lecture and discussion periods to acquaint students with information about starting and operating a business.
2. Arrange field trips to local businesses.
3. Provide resources to meet objectives.
4. Supervise student activities.
5. Evaluate students' performance.
6. Arrange for guest speakers.

STUDENT ACTIVITIES:

1. Maintain a notebook on lectures and discussions.
2. Complete a self-evaluation.
3. Complete a market analysis.
4. Complete a community analysis.

5. Complete an evaluation of an existing business.
6. Complete a feasibility study.
7. Compare different business locations.
8. Develop a financial plan.
9. Develop a layout for a particular type of business.
10. Develop a plan of growth.

EVALUATION:

1. Notebooks
2. Classroom tests and quizzes
3. Classroom projects

RELATIONSHIP AND APPLICATION TO OTHER UNITS:

Agricultural Mechanics

1. Visit local agricultural mechanics businesses to see what is involved in operating these businesses.
2. Select a type of agricultural mechanics business and do a market analysis for that business.
3. Compare the planning process for a particular type of agricultural mechanics business.
4. Evaluate existing local agricultural mechanics businesses.
5. Evaluate possible locations in the community for agricultural mechanics business.
6. Develop a layout for an agricultural mechanics business.

Animal Science

1. Visit local animal science businesses to see what is involved in operating these businesses.
2. Select a type of animal science business and do a market analysis for that business.
3. Complete the planning process for a particular type of animal science business.
4. Evaluate existing local animal science businesses.

5. Evaluate possible locations in the community for animal science businesses.

6. Develop a layout for an animal science business.

Natural Resources

1. Visit local natural resources businesses to see what is involved in operating these businesses.

2. Select a type of natural resources business and do a market analysis for that business.

3. Complete the planning process for a particular type of natural resources business.

4. Evaluate existing local natural resources businesses.

5. Evaluate possible locations in the community for natural resources businesses.

6. Develop a layout for a natural resources business.

Plant Science

1. Visit local plant science businesses to see what is involved in operating these businesses.

2. Select a type of plant science business and do a market analysis for that business.

3. Complete the planning process for a particular type of plant science business.

4. Evaluate existing local plant science businesses.

5. Evaluate possible locations in the community for plant science businesses.

6. Develop a layout for a plant science business.

RESOURCES:

1. Local business people

2. Bank loan officers

3. Small Business Administration information

4. Local Chamber of Commerce information

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Lee, Delene W. Agribusiness Procedures and Records. New York: McGraw-Hill, Inc., 1980.

Long, Don L. Introduction to Agribusiness Management. New York: McGraw-Hill, Inc., 1980.

Pfahl, Peter B. The Retail Florist Business. Danville, Illinois: The Interstate Printers and Publishers, Inc., 1973.

MEDIA:

Creative Educational Video, 5147-A 69th Street, P.O. Box 65265, Lubbock, Texas 7964-5265:

Direct Marketing. Video.

Product Management. Video.

Starting and Running Retail Stores. Video.

Target Markets. Video.

Hobar Publications, 1234 Tiller Lane, St. Paul, Minnesota 55112:

Management Economic Principle. Computer software.

Record Analysis. Computer software.

Farm Management and Related Review. Computer software.

INDIVIDUAL TEACHER UNIT REVIEW

This addition to the Curriculum Guide is included after each unit. After teaching this unit instruction, please complete the form below. It is intended to be used by curriculum writers the next time this curriculum undergoes revision. It is also intended for your use as an aid in periodically updating as you continually teach this unit.

A. ADDITIONAL AND UPDATED TEACHING METHODS:

1. Student Activities--

2. Teacher Activities--

3. Evaluation Methods--

B. ADDITIONAL AND UPDATED REFERENCES:

1. Media--

2. Bibliography--

C. ADDITIONAL AND UPDATED RESOURCES INCLUDING ADDRESSES AND PHONE NUMBERS:

1. Resource	Address	Phone

D. WHEN TAUGHT AGAIN I WOULD MAKE THESE CHANGES:

1.

2.

3.

AGRIBUSINESS MANAGEMENT CURRICULUM

UNIT: Principles of Agribusiness

LENGTH: Four weeks. Select areas of content according to student needs and time available.

WHEN TAUGHT: Grade 11 or 12

OBJECTIVES: The student will be able to:

1. Distinguish between the types of economic organization and how they relate to the agricultural industry.
2. Define the laws of supply and demand.
3. Discuss the difference between elasticity and inelasticity of agricultural prices.
4. Identify the various types of business organizations.
5. Explain the importance of capital use in agriculture.
6. Distinguish between the types of loans in terms of length, use, security and repayment schedule.
7. List the sources of loan funds available in agriculture.
8. Identify the key points in establishing and developing credit.
9. List the various types of interest on borrowed money.
10. Define management.
11. Distinguish between management problem types and characteristics.
12. Identify the steps involved in making decisions.
13. List the categories used to classify decisions.
14. Define the management functions of planning, implementation and control.
15. Distinguish between the various financial plans.
16. Discuss the different types of budgeting.
17. Identify the regulations involved with operating an agribusiness.
18. Explain the importance of futures trading in agriculture.
19. Distinguish between the role of the speculator and the hedger.

20. Discuss the trading procedure of the futures market.

21. Identify the costs of futures trading.

RELATED JOB TITLES AND RELEVANT COMPETENCIES:

Dairy Farm Manager	49:1(c,d), 54:15(a-c), 54:16(a-i), 54:17(a-g), 55:19(a-f)
Manager of Grain, Fertilizer, Feed and Seed Sales Business	234:19(a-h), 234:20(a-g), 234:21(a-d), 235:22(a-d), 235:23(a-k), 235:24(a-e), 235:25(a-b)

CONTENT:

I. Basic agricultural economic principles

  A. Introduction to agricultural industry

    1. Scope of United States agriculture
    2. Importance of United States agriculture to world market
    3. Future of United States agriculture
    4. Production cycles

  B. Types of economic organization

    1. Free competition
    2. Monopoly
    3. Monopolistic competition
    4. Ologopoly

  C. Principles of supply and demand

    1. Law of supply
    2. Law of demand

  D. Agricultural prices

    1. Elasticity
    2. Inelasticity

II. Forms of business organization

   A. Sole proprietorships

   B. Partnerships

   C. Corporations

   D. Cooperatives

III. Capital and the use of credit

   A. Capital use

      1. Total capital use

      2. Allocation of limited capital

      3. Capital rationing

      4. Leverage and the use of credit

      5. Principle of increasing risk

   B. Classification of loans

      1. Length

         a. short-term loans
         b. intermediate-term loans
         c. long-term loans

      2. Types

         a. real estate loans
         b. non-real estate loans

            1. personal loans
            2. commercial loans

   C. Sources of loan funds

      1. Commercial banks

      2. Savings and loans

      3. Farm credit system

         a. Federal Land Bank Association
         b. Production Credit Association

      4. Life insurance companies

      5. Farmers Home Administration

        6. Individuals

        7. Merchants and dealers

        8. Mortgage companies

        9. Other sources

            a. Small Business Administration
            b. United States Department of Agriculture--Agricultural Stabilization and Conservation Service

    D. Establishing and developing credit

        1. Personal character

        2. Management ability

        3. Financial position and progress over time

        4. Repayment capacity

        5. Purpose of the loan

        6. Collateral

    E. Cost of borrowing money

        1. Types of interest rates

            a. simple interest
            b. compound interest
            c. discount interest
            d. add-on interest

        2. Calculating interest rates

        3. Origination fees

            a. down payment
            b. points
            c. lawyer fees
            d. loan application fees
            e. other

IV. Defining financial plans

    A. Financial statement

    B. Profit and loss statement (income)

    C. Cash flow analysis

V. Types of budgets

   A. Partial budget

   B. Total budget

   C. Cash flow budget

   D. Enterprise budget

VI. Laws and regulations involved with operating an agribusiness

   A. Licenses and fees

      1. Kinds of businesses

      2. Locale

      3. Purpose of business

   B. Types of regulations

      1. Health and safety regulations

      2. Tax regulations

      3. Zoning regulations

VII. Commodity futures trading

   A. Futures contracts

   B. Futures traders

      1. Speculators

      2. Hedgers

   C. Trading procedure

   D. Cost of futures trading

VIII. Agribusiness management principles

   A. Define Management

   B. Problems --types and characteristics

      1. Identification of goals and objectives

      2. Limited resources

      3. Alternative uses of limited resources

C. Steps in the financial decision-making process

   1. Identify and define the task
   2. Collecting data and information
   3. Identifying and analyzing alternatives
   4. Making the decision
   5. Implementing the decision
   6. Observing and bearing responsibility

D. Decision-making criteria

   1. Importance
   2. Frequency
   3. Imminence
   4. Revocability
   5. Number of available alternatives

E. Management functions

   1. Planning
   2. Implementation
   3. Control

TEACHER ACTIVITIES:

1. Prepare classroom activities.
2. Utilize resource people from financial institutions and farm organizations.
3. Plan field trips to financial and credit institutions, such as PCA and FmHa.
4. Plan field trips to local agribusinesses that rely heavily on the use of credit.
5. Brainstorm and lead a classroom discussion on management goals.
6. Invite a panel of people employed in jobs dealing with financial management to speak to the class.
7. Conduct case studies on the use of records in local agribusiness.

8. Review basic economic principles with an economics class.

9. Invite members of the local planning and zoning commission and wetlands commission to speak to the class.

STUDENT ACTIVITIES:

1. Maintain a notebook on lecture and discussion sessions.
2. Evaluate and analyze their own SAE.
3. Complete and present a profit and loss statement.
4. Follow the futures market for a certain commodity and see how it progresses for four weeks.
5. Role-play the different sides involved with the loan process.
6. Have students actually buy a commodity and check on gain or loss.
7. Prepare a mock loan application.
8. Investigate local interest rates and shop for the best.
9. Develop a financial plan for a local agricultural business.
10. Interview a loan officer at a local bank.
11. Attend a local planning and zoning commission public hearing.
12. Attend a local wetlands commission meeting.
13. Apply for a mock state tax number.
14. Have each student complete a personal budget.

EVALUATION:

1. Review notebooks regularly for organization and neatness.
2. Conduct classroom tests and quizzes.
3. Supervise student activities.

RELATIONSHIP AND APPLICATION TO OTHER UNITS:

Agricultural Mechanics

1. Perform a mock purchase of a large piece of farm equipment, investigating the different choices for financing.

Animal Science

1. Visit an agricultural cooperative and learn how the coop operates (e.g., Central Connecticut Cooperative).
2. Buy shares in an agricultural commodity and follow their progress.

Natural Resources

Find the best price for a timber stand by obtaining bids from suppliers.

Plant Science

1. Find the best price for a landscaping job by obtaining bids from local landscapers.
2. Study the effects of seasonal demand on the operation of a floral shop.

RESOURCES:

1. Textbooks
2. Audio-visuals
3. Local businessmen
4. Bank officials
5. Civic leaders and government officials

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Basic Agricultural Skills: Business Financial Techniques. Instructional Materials Service, Department of Education, Cornell University, 24 Roberts Hall, Ithaca, New York 14853.

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Osburn, Donald D. and Kenneth C. Schneeberger. Financial Planning in Agriculture. Illinois: The Interstate Printers and Publishers, Inc., 1977.

MEDIA:

Vocational Agriculture Service Instructional Materials, College of Agriculture, University of Illinois, 1401 South Maryland Drive, Urbana, Illinois 61801:

Credit and Financial Management. Instructional unit, including test questions and cassette tapes.

Managing for Profit. Slide film series.

Vocational Education Productions, California Polytechnic State University, San Luis Obispo, California 93407:

Agricultural Management Series. Filmstrips.

Agricultural cooperatives

Agricultural marketing

Farm and ranch management

Agricultural credit

Farm personnel management

INDIVIDUAL TEACHER UNIT REVIEW

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1. Resource	Address	Phone

D. WHEN TAUGHT AGAIN I WOULD MAKE THESE CHANGES:

1.

2.

3.

BEST COPY AVAILABLE

AGRIBUSINESS MANAGEMENT CURRICULUM

UNIT: Money Management in Agriculture

LENGTH: Four weeks. Select areas of content according to student needs and time available.

WHEN TAUGHT: Grade 11 or 12

OBJECTIVES: The student will be able to:

1. Identify banking services.
2. Identify costs of banking services.
3. Complete a bank deposit transaction.
4. Write and endorse checks.
5. Reconcile a bank statement.
6. Identify sources of borrowed funds.
7. Determine criteria to evaluate lenders.
8. Identify what factors a lender uses for loan evaluation.
9. Construct and use financial records.
10. Determine advantages and disadvantages of credit.
11. Calculate the costs of different types of credit.
12. Identify various business taxes.
13. Calculate a social security tax payment.
14. Evaluate the different types of depreciation.
15. Calculate depreciation.
16. Identify types of insurance.
17. Identify sources and uses of professional services.
18. Identify the procedures for property transfer of ownership.
19. Demonstrate the use of contracts and agreements.

RELATED JOB TITLES AND COMPETENCIES:

Manager of Grain, Fertilizer, Feed and Seed Sales Business	234:20(a-g); 234:21(a-d); 235:22(a-d); 235:25(a-b)
Bank Loan Officer	
Finance Manager	

CONTENT:

I. Banking services
    A. Savings accounts
        1. Passbooks
        2. Statements
        3. Timed deposits
    B. Checking accounts
    C. Mortgages
    D. Business loans
    E. Money orders
    F. Traveler checks
    G. Bonds and investments
    H. Safe deposit boxes
    I. Trusts and wills

II. Practical applications of handling money
    A. Checks
    B. Deposits
    C. Withdrawals
    D. Statement reconciliations
    E. Automatic teller machines

III. Classifications of borrowed funds
    A. Purpose

        1. Consumer
        2. Business
    B. Duration
        1. Short term
        2. Intermediate
        3. Long term
    C. Security
        1. Secured
        2. Unsecured
    D. Source or type of lender
        1. Individuals
        2. Commercial banks
        3. Life insurance companies
        4. Farm credit banks
        5. Farmers Home Administration (FHA)
        6. Small Business Administration (SBA)
        7. Credit cards
        8. Finance companies
        9. Credit unions

IV. Evaluation of lender
    A. Knowledge of practices and problems
    B. Experience
    C. Lending policies
        1. Repayment schedules
        2. Credit costs
    D. Reputation for honesty and fair dealing

V. Evaluation of borrower
    A. Man and management
    B. Financial position
    C. Purpose
    D. Repayment capacity
    E. Security

VI. Special considerations for young borrowers
    A. Unique characteristics
    B. Special problems
        1. Limited capital
        2. Lease vs. purchase
        3. Inexperience
        4. Young family
    C. Financing strategies

VII. Financial records
    A. Financial statement (balance sheet)
    B. Profit and loss statement (income statement)
    C. Cash flow statement

VIII. Cost of credit
    A. Simple interest
    B. Installment credit
    C. Line of credit
    D. Amortization of loans

IX. Business taxes
    A. Sales tax
    B. Income tax

C. Social security tax

D. Gasoline tax

X. Insurance

A. Types

1. Health and accident

2. Life

3. Casualty

a. fire
b. windstorm
c. hail

4. Liability

a. bodily injury
b. personal property

B. Special applications

1. Workman's compensation

2. Mortgage or credit life insurance

3. Endowment

4. Individual retirement annuity

5. Keogh plan

XI. Legal procedures

A. Types of law

1. Common

2. Civil

3. Statutory

B. Professional legal services

1. Lawyer

2. Bank loan officer

3. Notary

    4. Real estate agent

C. Transfer of ownership of property

    1. Rental or lease agreements

    2. Purchase agreements

    3. Deed

        a. warranty
        b. quit claim

    4. Wills

    5. Interstate transfers

    6. Trusts

TEACHER ACTIVITIES:

1. Arrange for field trip to local commercial bank.

2. Arrange for loan officer to speak about lending.

3. Use computer program to prepare typical financial plans and records.

4. Have professional lawyer discuss legal services.

5. Have insurance salesperson talk to class regarding insurance needs.

STUDENT ACTIVITIES:

1. Keep a notebook of handout materials and class notes

2. Open savings and checking accounts at local bank.

3. Use a constructed problem to complete financial records.

4. Role-play as lender and borrower to seek financing, using typical records and partial budgets.

5. Complete loan application.

6. Calculate simple and installment credit costs.

7. Calculate typical tax problems.

8. Develop a depreciation schedule using students, parents, or FFA's equipment.

EVALUATION:

1. Notebook organization and materials completed
2. Classroom tests and quizzes on skills developed
3. Worksheets

RELATIONSHIP AND APPLICATION TO OTHER UNITS:

Agricultural Mechanics

1. Students visit local agricultural mechanics businesses and prepare a financial plan.
2. Students visit and observe the operation and management of franchise dealership.

Animal Science

1. Students visit local animal science businesses and inspect a typical financial statement and cash flow statement.
2. Students contact a representative of a leasing company to compare leasing versus ownership of equipment, livestock or buildings.

Natural Resources

1. Students visit and evaluate existing local natural resources businesses.
2. Students visit and interview a tax consultant to discuss tax implications in forestry harvesting.

Plant Science

1. Students visit a landscape or flower shop to observe money management practices.
2. Students visit an operating horticultural establishment to observe financial practices.

RESOURCES:

1. Textbooks
2. Audio-visuals
3. Local businessmen
4. Bank officials

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Agribusiness Management and Operation (June, 1988).

Belew, Richard C. How to Negotiate a Business Loan. New York: Van Nostrand Reinhold Company, 1973.

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Department of Agriculture Education, The Ohio State University, Columbus, Ohio:

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Doster, D. Howard, William H. Hamilton and Donald F. Connelly. The Creative Young Entrepeneur (1988). The Three Entrepeneurs, Inc., 11 Circle Lane, West Lafayette, Indiana 47906.

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Gross, Henry. Financing for Small and Medium Sized Businesses. Englewood Cliffs, New Jersey: Prentice Hall, 1969.

Instructional Materials Service, Cornell University, 24 Roberts Hall, Ithaca, New York 14853:

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Agricultural Business Principles - Student. Cornell University. Teacher edition also available.

Agricultural Business Procedures and Records. Ohio State University.

Agricultural Credit Instruments. University of Illinois.

Agricultural Economics Packet. 1981. Iowa State University and Department of Public Instruction, Career Education Division, Grimes State Office Building, Des Moines, Iowa 50319.

Budgeting and Spending. Ohio State University.

Building an Insurance Program. Ohio State University.

Common Ways of Organizing a Business. University of Illinois.

Conneman Collection - Farm Business Management. Cornell University.

Cornell Farm Account Book. Cornell University.

Cornell Farm Inventory and Depreciation Book. Cornell University.

Credit. Ohio State University.

Credit and Financial Management. University of Illinois.

Decision Making for Profit. Cornell University.

Doane's Farm Management Guide. Doane Agricultural Service, Inc., 11701 Borman Road, St. Louis, Missouri, 63146. *Instructor's Teaching Guide* and *Student Workbook* also available.

Guidelines for Keeping the Cornell Farm Account Book - Student Manual. Cornell University. *Teacher's Manual* also available.

Keeping Records Straight. Cornell University.

Law for the Farmer. University of Illinois.

Planning a Profitable Farm Business. University of Illinois.

Profit Maximizing Principles. Ohio State University.

Savings and Checking Accounts. Cornell University.

Veterinary Records and Office Procedures. Cornell University.

Instructional Materials Laboratory, University of Missouri-Columbia, Columbia, Missouri:

Napier, D. *Business Administration*.

National Center of Research in Vocational Education, Ohio State University, 1960 Kenny Road, Columbus, Ohio 43210:

Complying with Government Regulations. Program for Acquiring Competence in Entrepreneurship, Unit 10, Level 1, 2, lnd 3.

Developing the Business Plan, Level 1 and 2.

Financing the Business. Unit 8, Level 1, 2, and 3, Program for Acquiring Competence in Entrepreneurship (PACE), 1983.

Keeping the Business Records.

Managing Customer Credit and Collection. Unit 17, Level 1, 2, and 3 Program for Acquiring Competence in Entrepreneurship (PACE).

National Council of Small Business Management Development. University of Wisconsin Extension, 929 North Sixth Street, Milwaukee, Wisconsin 53203:

Journal of Small Business Management.

Ohio Agricultural Education Curriculum Materials Service, Department of Agricultural Education, The Ohio State University, Columbus, Ohio:

Peltier, Ruth A. *Mathematics for Horticulture*.

Oklahoma State Board of Vocational and Technical Education, Stillwater, Oklahoma:

Lyon, Barbara. *Business Management and Ownership* (1982).

Osburn, Donald D. and Kenneth C. Schneeberger. *Financial Planning in Agriculture*. Danville, Illinois: The Interstate Printers and Publishers, Inc., 1983.

Pfahl, Peter B. *The Retail Florist Business*. Danville, Illinois: The Interstate Printers and Publishers, Inc.

MEDIA:

Ag Pac - Madison, Wisconsin. Computer software.

Agrifax On-Farm Financial Accounting Software - Farm Credit Bank of Springfield, Massachusetts. Computer software.

Agri-Ledger - Small Business Computer Systems. Computer software.

Asset Depreciation/Management - Red Wing. Computer software.

Depreciation + - Farm Business Systems, Aledo, Illinois. Computer software.

Farm Accounting Package w/Ext. Analysis - Harris. Computer software.

Farm Accounting Program 600 - Farm Business Systems, Aledo, Illinois. Computer software.

Farm Educational Program - S. D. S. Computer software.

Farm Record Keeping and Analysis - Control Data. Computer software.

Financial Management Series I - Harris. Computer software.

General Ledger - Red Wing. Computer software.

Tax Preparer OFFICIAL - Howard Soft. Computer Software.

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1. Student Activities--

2. Teacher Activities--

3. Evaluation Methods--

B. ADDITIONAL AND UPDATED REFERENCES:

1. Media--

2. Bibliography--

C. ADDITIONAL AND UPDATED RESOURCES INCLUDING ADDRESSES AND PHONE NUMBERS:

1. Resource Address Phone

D. WHEN TAUGHT AGAIN I WOULD MAKE THESE CHANGES:

1.

2.

3.

AGRIBUSINESS MANAGEMENT CURRICULUM

UNIT: Human Relations in Agribusiness

LENGTH: Four weeks. Select areas of content according to student needs and time available.

WHEN TAUGHT: Grade 11 or 12

OBJECTIVES: The student will be able to:

1. Describe relationships between self, co-workers, employers, and customers.
2. Distinguish between equal employment policies and affirmative action programs.
3. Describe the difference between technical knowledge and people knowledge.
4. Describe how good human relations enable a person to succeed in work.
5. Define and describe self-image.
6. Illustrate the valuing process.
7. Describe a strategy for building self-confidence.
8. Compare and contrast the three basic management styles: authoritarian, democratic, laissez-faire.
9. Conduct a personality inventory.
10. Identify time management techniques.
11. Demonstrate good grooming.
12. Demonstrate good social graces.
13. Describe good work habits.
14. List agricultural career opportunities and requirements.
15. Prepare for a job interview.
16. Interview for a job.
17. Write personal and career long and short term goals.

RELATED JOB TITLES AND COMPETENCIES:

Manager of Grain, Fertilizer, Feed and Seed Sales Business	229:1(a-m), 230:2(a-b)
Farm Equipment Salesman	320:3(a-c)

CONTENT:

I. Human Relations
  A. Importance of human relations
    1. Job satisfaction
    2. Job happiness
  B. Relationships
    1. With self
    2. With co-workers
    3. With employers/supervisors
    4. With customers
  C. Equal employment and affirmative action
    1. Recruitment/hiring
    2. Working conditions
    3. Salary, benefits, and privileges
    4. Training
    5. Promotions, transfers, and layoffs
    6. Terminations
    7. Laws (state and federal)

II. Self-image
  A. Determining who you are
  B. Identifying values
  C. Positive versus negative images
  D. Strengths versus weaknesses

E. Stress management

F. How others see you

III. Developing good work habits

A. Appearance

B. Attitude

C. Dependability

D. Motivating individuals to do their best

1. Money

2. Recognition

3. Personal satisfaction

E. Grooming

F. Time management

G. Social graces

IV. Employee relationships

A. Employee traits employers look for

1. Competence

2. Loyalty

3. Trustworthiness

4. Honesty

5. Willingness to accept responsibility

6. Industriousness

7. Cooperativeness

B. Constructive criticism

1. Listening attentively

2. Asking for suggestions for improvement

V. Customer relationships

A. Types of customers

B. Dealing with customers
C. Customers' expectations of employees
  1. Interest in customers' needs and desires
  2. Information about service(s)
  3. Neat appearance
  4. Pleasing personality
  5. Honesty
  6. Reliability
  7. Courtesy
  8. Dependability
  9. Cooperativeness
D. Improving technical skills
  1. Adult education
  2. Seminars
  3. Trade magazines
  4. Workshops

VI. Employer to employee relationships
A. Working together
B. Being considerate
C. Maintaining friendly interest
D. Treating co-workers as individuals
  1. Giving recognition
  2. Putting co-workers on same level

VII. Setting goals
A. Personal
B. Professional
C. Short term

D. Long term

E. Achievement of goals

VIII. Agricultural occupational career goals

A. Analyzing agricultural career opportunities

B. Determining job requirements

C. Establishing future financial plans

D. Appraising one's financial standing

E. Locating job opportunities

IX. Personal interview

A. Before the interview

1. Gathering references

2. Anticipating questions

B. During the interview

1. Being on time

2. Introducing oneself

3. Observing proper etiquette

4. Maintaining a positive image of former employers

5. Asking questions to clear up problem areas

6. Thanking interviewer

C. After interview

1. Writing thank you letter/note

2. Restating one's interest

TEACHER ACTIVITIES:

1. Preparing a pre-test.

2. Administering such tests/activities as:

a. personality inventories
b. values assessments
c. Johari Window

d. Maslow's Hierarchy
e. stress tests.

3. Inviting guest speakers such as guidance counselors, personnel managers, psychologists, store owners.

4. Developing a daily log so that student may keep a record of time spent on daily tasks.

5. Preparing for field trip.

6. Obtaining case studies.

STUDENT ACTIVITIES:

1. Maintain a notebook on class discussions, hand-outs.
2. Complete activity sheets.
3. Create role-playing situations.
4. Develop skits depicting good social graces and good grooming.
5. Keep log of daily and weekly activities and then analyze them in class.
6. Develop long- and short-term goals.
7. Develop career and personal goal plans.
8. Complete job applications.

EVALUATION:

1. Attendance
2. Quizzes, tests, worksheets
3. Class projects

RELATIONSHIP AND APPLICATION TO OTHER UNITS:

Agricultural Mechanics

1. Students go to local tractor dealership to observe mechanics working on agricultural machinery and engines. Students observe how mechanics diagnose problems, explain them to the customer, and make recommendations to the customer for repairs.

2. Students develop a list of technical and personal skills they currently possess for a job for which they wish to apply.

3. Students conduct a survey of local agricultural mechanic career jobs to determine hiring practices, sex equality, and affirmative action.

Animal Science

1. Students spend time in a tack shop shadowing a supervisor or employee and observing how he/she handles and reacts to situations in the workplace.

2. Students visit a local veterinarian and observe how he/she handles customer problems in checking-in and checking-out animals.

3. Teacher provides simulations for dealing with dissatisfied customers; for example, for dealing with an irate customer who does not like a product and wants his/her money back.

4. Students develop a list of technical and personal skills they currently possess for a job for which they wish to apply.

Natural Resources

1. Students meet with personnel manager of Department of Environmental Protection or other conservation agency/organization to determine which qualities they look for in potential employees.

2. Students attend meetings with local zoning commissions and inland wetland agencies to observe verbal and nonverbal communication skills.

3. Students visit five natural-resources job sites and interview the employer and employees. Students then develop a list of positives and negatives of each particular job.

4. Students develop a list of identifiable technical and personal skills which they possess for a job of their choice.

Plant Science

1. Using applications obtained from local employers, students "interview" for specific horticultural jobs

2. Students maintain daily log of observations on employee/employer relationships in horticultural jobs.

3. Students role-play in class employer/customer/employee relationships.

4. Students develop a list of technical and personal skills they currently possess for a job for which they wish to apply.

5. Students meet with the supervisor of a florist shop to discuss how he/she handles problems with employees related to tardiness, dressing inappropriately, etc.

6. Students develop skil showing how proper manners and dress are essential in the horticultural field.

RESOURCES:

1. Worksheets
2. Textbooks
3. Audio-visuals
4. Resource people

BIBLIOGRAPHY:

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Doster, D. Howard, William H. Hamilton and Donald F. Connelly. The Creative Young Entrepeneur (1988). The Three Entrepeneurs, Inc., 11 Circle Lane, West Lafayette, Indiana 47906.

Eggland, Steven and John W. Williams. Human Relations at Work. Cincinnati: South-Western Publishing Co., 1987.

Williams, John W. and Steven A. Eggland. Communicating at Work. Cincinnati: South-Western Publishing Co., 1987.

MEDIA:

Guidance Associates, Mt. Kisco, New York 10549:

Resumes That Get Interviews: Interviews That Get Jobs. Video.

RMI Productions, 2807 West 47th St., Shawnee Mission, Kansas 66205:

How to Write a Resume. Video.

Vocational Agriculture Service Instructional Materials, College of Agriculture, University of Illinois, 1401 South Maryland Drive, Urbana, Illinois 61801:

Careers in Agriculture. Slides, tape, script.

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1. Student Activities--

2. Teacher Activities--

3. Evaluation Methods--

B. ADDITIONAL AND UPDATED REFERENCES:

1. Media--

2. Bibliography--

C. ADDITIONAL AND UPDATED RESOURCES INCLUDING ADDRESSES AND PHONE NUMBERS:

1. Resource	Address	Phone

D. WHEN TAUGHT AGAIN I WOULD MAKE THESE CHANGES:

1.

2.

3.

AGRIBUSINESS MANAGEMENT CURRICULUM

UNIT: Written and Oral Communication

LENGTH: Four weeks. Select areas of content according to student needs and time available.

WHEN TAUGHT: Grade 11 or 12

OBJECTIVES: The student will be able to:

1. Define related terminology.
2. Identify activities used to convey ideas.
3. Identify forms of written business communication.
4. Write various forms of written business communication.
5. Identify various forms of written personal communication.
6. Compose various forms of written personal communication.
7. Write a letter of persuasion.
8. Identify forms of verbal business communication.
9. Demonstrate techniques used in verbal business communication.
10. List the characteristics of an oral presentation.
11. Design an oral presentation.
12. Deliver an oral presentation.

RELATED JOB TITLES AND RELEVANT COMPETENCIES:

Store Manager	237:33(a-e)
Store Clerk	251:33(a-e)
Floriculture Delivery Person	415:1(a-c)
Campground Manager	502:8(b-c)
Hunting and Fishing Guide	513:9(a,c)
Forest Insect Ranger	571:8(a,b)

CONTENT:

I. Communicating ideas

A. Reading

B. Writing

C. Speaking

D. Listening

E. Nonverbal

1. Dress

2. Gestures

3. Other

II. Written Communication

A. Business

1. Business letter

a. format
b. effective expression
c. when to use

2. Memo

a. format
b. concise expression
c. when to use

3. Technical reports

a. format
b. content
c. when to use

4. Proposals

a. content
b. format/organization
1. written explanation
2. graphs
3. charts
4. photos
5. others
c. when to use

- B. Personal
  - 1. Letter of inquiry
  - 2. Cover letter
  - 3. Resume
  - 4. Applications
- III. Verbal communication
  - A. Message enhancers
    - 1. Tone of voice
    - 2. Eye contact
    - 3. Visual appeal
    - 4. Mechanics
      - a. grammar
      - b. style
  - B. The medium
    - 1. The telephone
      - a. etiquette
      - b. exchanging information
      - c. marketing tool
    - 2. Radios/PA systems/television/video
      - a. use
      - b. etiquette
    - 3. Oral presentations
      - a. content preparation
      - b. visual appeal
        - 1. material
        - 2. presenter
      - c. speaking effectiveness
      - d. fielding questions from the audience

TEACHER ACTIVITIES:

1. Prepare lecture materials.
2. Prepare samples of written communications.

3. Prepare samples of oral communications.
4. Design role playing activities.
5. Secure audio-visual materials.
6. Arrange for guest speakers.
7. Develop a notebook of all class handouts and materials.

STUDENT ACTIVITIES:

1. Keep a notebook of all class activities.
2. Participate in class discussions.
3. Prepare samples of written and oral communications.
4. Prepare and make an oral presentation.
5. Participate in guest speaker or field trip activities.

EVALUATION:

1. Class participation in discussion
2. Notebook organization and completeness
3. Completeness of reports on field trips and/or guest speakers
4. Classroom tests and quizzes
5. Oral presentation
6. Role-playing in classroom situation

RELATIONSHIP AND APPLICATION TO OTHER UNITS:

Agricultural Mechanics

1. A student role-plays a counter person in a farm equipment sales firm by answering the telephone or answering customer questions.
2. Have students make an oral presentation on a new piece of equipment in a supply store.
3. Each student writes business letter to a vendor concerning a mechanical problem.

Animal Science

1. Students role-play a veterinary receptionist position.
2. Students write a letter of inquiry for any product found in a trade magazine or similar source.
3. Students investigate an animal-related topic and deliver an oral presentation.

Natural Resources

1. Students act as Soil Conservation Agents and listen to a farm problem in a role-playing situation.
2. Students write a proposal for a forestry management program.
3. Students write a job description for a position as a Park Ranger or Wildlife Conservation Officer.

RESOURCES:

1. School supplied materials
2. Work sheets
3. Text books
4. Persons in the business community
5. Career Center in school

BIBLIOGRAPHY:

REFERENCES:

Armstrong, Fiona, Myra Baum and J. B. Miller. Lifeworks--A Realistic Job Search. New York: Gregg Division, McGraw-Hill Book Col, 1980.

Brewner, Margaret M., William McMahon and M. P. Roche. Job Survival Skill. New York: Educational Design, Inc., 1986.

Doster, D. Howard, William H. Hamilton and Donald F. Connelly. The Creative Young Entrepeneur (1988). The Three Entrepeneurs, Inc., 11 Circle Lane, West Lafayette, Indiana 47906.

Kimbrell, Grady and Ben S. Vineyard. Succeeding in the World of Work. Bloomington, Illinois: McKnight Publishing Co., 1981.

Williams, John W. and Steven A. Eggland. Communication in Action. Bloomington, Illinois: McKnight Publishing Co., 1981.

MEDIA:

RMI Media Productions, 2807 West 47th Street, Shawnee Mission, Kansas 66205:

Inside Business Today--How to Interview for a Job. Video.

Vocational Media Associates, Box 1050, Mount Kisco, New York 10549-9989:

Career English: Communicating on the Job. Video.

Communication Skills: Dealing With Customers. Video.

Daily Business Communications. Filmstrips on video--four parts.

How to Listen Effectively. Video.

Resumes That Get Interviews: Interviews That Get Jobs. Video.

Telephone Communications. Two filmstrips on video.

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1. Resource	Address	Phone

D. WHEN TAUGHT AGAIN I WOULD MAKE THESE CHANGES:

1.

2.

3.

AGRIBUSINESS MANAGEMENT CURRICULUM

UNIT: Sales and Selling in Agriculture

LENGTH: Four weeks. Select areas of content according to student needs and time available.

WHEN TAUGHT: Grade 11 or 12

OBJECTIVES: The student will be able to:

1. Define terminology.
2. Identify a selling point.
3. Identify a benefit.
4. List the qualities of an effective salesperson.
5. Distinguish between a sales talk and a conversation between friends.
6. Identify types of salespersons.
7. Identify customer types.
8. List the types of selling practices.
9. Create a friendly atmosphere when greeting a customer.
10. Identify the difference between needs and wants.
11. Define the different types of approaches.
12. Demonstrate a sales presentation.
13. Define a customer's objection to a sales point.
14. Demonstrate how to handle customer objections.
15. Demonstrate the use of suggestion selling.
16. Demonstrate closing a sale.

RELATED JOB TITLES AND RELEVANT COMPETENCIES:

Store Manager	229:1(a-m) 230:2(a,b); 3(a,c,e,h) 231:5(c); 6(c-e); 8(a,d) 232:9(e); 10(a,c,e); 12(b,c) 233:15(c); 16(a); 18(c)

Store Manager - Cont'd	234:20(c) 235:23(a,h,i,j); 24(a) 236:26(a-e): 27(a-i); 28(b) 237:33(b); 34(c)
Sales and Service Representative	239:1(a-m) 240:2(a,b); 3(a-z) 242:4(a,b); 5(a-c); 6(a-e) 243:8(a-g); 9(a-h) 244:10(a-g); 11(a); 12(b,c) 245:16(a) 246:18(c,d); 19(a-h) 247:20(c,d,f,g); 22(a-d) 248:23(h-j) 249:26(a-e); 27(a-i) 250:28(b) 251:33(b); 34(c)
Pet Shop Worker	275:11(b-e,g,h)
Farm Equipment Salesperson	319:1(a-d); 2(a-l) 320:3(a-c); 4(a-b); 5(a-e); 6(a-d) 321:7(a-c); 8(a,b); 9(a,b): 10(a-c); 321:11(a-d)
Floriculture Salesperson	417:1(a-e); 2(a-h); 3(a-e, h)
Nursery Salesperson	453:1(a-j); 2(a-n) 454:3 454:4 454:6(a-h)

CONTENT:

I. Terminology

II. Salesmanship

   A. Develop an effective sales personality

   B. Develop interest and aptitude in selling

   C. Develop knowledge of product

   D. Identify buying motives and benefits

   E. Create an atmosphere for selling

III. Types of salespersons

   A. Order taker

  - B. Negotiator
  - C. Creative seller

IV. Customers

  - A. Types of customers
    - 1. The decided customer
    - 2. The undecided customer
    - 3. The casual customer
  - B. Why people buy
  - C. Satisfying customer needs

V. Types of selling

  - A. Verbal
    - 1. One on one
    - 2. Group
    - 3. Telephone
    - 4. Auctioneering
    - 5. Bidding
  - B. Nonverbal
    - 1. Mail
    - 2. Display
    - 3. Bidding

VI. Parts of a sales transaction

  - A. The approach to the customer
  - B. Securing customer attention, interest and desire
  - C. Sales presentation
  - D. Noting objections
  - E. Substitute selling
  - F. Suggestive selling

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G. Closing the sale

H. The lost sale

I. Follow up and repeat sales

VII. Making sales presentation

A. Six steps in making a sale

1. Approaching the customer
2. Securing attention, arousing interest, and building desire
3. Handling objections
4. Suggesting substitutions
5. Suggesting related items
6. Closing the sale

B. Locating product and service information

TEACHER ACTIVITIES:

1. Discuss the qualities of a salesperson.
2. Discuss how sales transactions are handled.
3. Prepare different sales examples (in subject area being taught) to use for role playing.
4. Create an evaluation form to be used by the students, in evaluating the role-playing exercises.
5. Arrange for a salesperson to come and make a sales presentation to the class.
6. Arrange for a salesperson to come and talk about selling in agriculture.
7. Videotape sales presentations on television and critique.

STUDENT ACTIVITIES:

1. Maintain notebook on discussions.
2. Make a list of statements for each type of sales approach.
3. Interview a salesperson and get his/her views on selling.

4. Role-play the different aspects in selling.
5. Practice selling vocational-agriculture products to the class.
6. Videotape students engaged in selling a product and evaluate in class.
7. Undertake field trip to view sales presentations.

EVALUATION:

1. Notebook organization and completeness
2. Classroom test and quizzes
3. Role-playing

RELATIONSHIP AND APPLICATION TO OTHER UNITS:

Agricultural Mechanics

1. Practice taking parts orders over the phone.
2. With a tractor dealership as a setting, make a sales transaction to a potential customer.
3. Set up a suggestive selling display in an agriculture machinery dealership.
4. Determine the best size tractor needed by the customer.
5. Bid on equipment.

Animal Science

1. In a feed store situation, determine the best feed to sell to meet the farmer's needs.
2. Suggest selling other items in a pet shop to increase sales.
3. Take orders over the telephone in a feed store situation.
4. Help a customer determine the right equipment needed in a tack shop situation. Suggestive and substituting transactions can be demonstrated.
5. Use a traveling salesperson situation (e.g., IBA). Have students try to sell animal supplies that may or may not be needed by the farmer.

Natural Resources

1. Create a demonstration to sell a product such as a chain saw.

2. Develop a target market to sell to.

3. Practice bidding on equipment used by foresters.

4. Take orders over the phone for a forestry supply service.

5. Substitute-sell one brand of equipment for another.

Plant Science

1. Practice taking floral orders over the telephone.

2. With a nursery as a setting, make a sale to a potential customer.

3. Substitute-selling could be handled in a garden shop setting which is out of one particular product.

4. Set up a suggestive selling display in a garden shop.

5. Deal with customers in a roadside vegetable stand.

RESOURCES:

1. Textbooks

2. Worksheets and workbooks

3. Audio-visual materials

4. Salespeople, businesses and coops

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Minneapolis, Minnesota 55426:

Fallex, Max. How to Set Up Your Own Small Business, Vol. II. One chapter on salesmanship.

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Department of Education, Hartford, Connecticut:

DiPersio, John B., et al. How to Sell (1974). Lesson plans for a unit in selling. Covers the six basic steps of selling.

Department of Agricultural Education, Iowa State University, Ames, Iowa:

Agribusiness Management and Operation (1988). Sales curriculum developed for all the areas in vocational-agriculture.

Doster, D. Howard, William H. Hamilton and Donald F. Connelly. The Creative Young Entrepeneur (1988). The Three Entrepeneurs, Inc., 11 Circle Lane, West Lafayette, Indiana 47906.

Instructional Materials Laboratory, 10 Industrial Education Building, University of Missouri, Columbia, Missouri:

Stewart, Bob R., McCaskey, Michael J. and Mark K. Mullinex. Agricultural Business Sales and Marketing (1984). Course teaching outline in agricultural business and marketing. Includes exercises and handouts.

McGraw-Hill Book Company, Gregg Division, P.O. Box 401, Hightstown, New Jersey 08520:

Ernest, John W., and Eugene L. Dorr. Basic Selling (Second Edition, 1978). A student workbook with many activities and question/answer pages.

Hutt, Robert W. Retail Salesmanship: A Programmed Text (1987). A student workbook on how to handle sales.

Hutt, Robert W. Selling in Agribusiness (1987). Text, activity guide and teacher's manual.

Ohio Agricultural Education Curriculum Materials Service, The Ohio State University, Room 254, 2120 Fiffe Road, Columbus, Ohio 43210:

Selling and Salesmanship for Agricultural Products. Contains many practical exercises.

Vocational Agricultural Services, College of Agriculture, University of Illinois, 1401 South Maryland Drive, Urbana, Illinois 61801:

Salesmanship in Agricultural Business. Subject matter units, test questions and teacher's key.

Vocational Instructional Materials Laboratory, Division of Instructional Education, Indiana State University, Terre Haute, Indiana 47809:

Wells, Richard D. and Robert H. Hewlett. 101 Case Problems in Retail Sales (1968). Lists 101 different situations a salesman might be in and possible solutions. Describes the basic principles involved.

MEDIA:

Creative Educational Video, 5147-A 69th Street, Lubbock, Texas 79424:

Product Identification. Comparison and contrast between national brands versus generic brands, and licensing agreements.

Consumer Buying Behavior. A video on the many factors influencing consumers' buying patterns.

Ready Reference Press, P.O. Box 5249, Santa Monica, California 90405:

Five Steps to Successful Selling. A videocassette on many techniques used by premier salespeople and top sales trainers.

Non-manipulative Selling: Building Sales Through Trust. Six audiocassettes on how to sell without using pressure.

24 Techniques for Closing the Sale. A videocassette by Brian Tracy.

The Psychology of Selling. Six audiocassettes and guide on the art of closing a sale.

No More Hang-ups: The Basics of Telephone Solicitation. A videocassette about selling over the telephone.

Dealing with Difficult Customers. videocassette

Consider Customers. videocassette

Exceptional Customer Service. Two videocassettes.

How to Win Customers and Keep Them for Life. Six audiocassettes.

South-Western Publishing Co., Cincinnati, Ohio:

Entrepreneurship in Action. Series of six film strips and cassette tapes. One on marketing the product or service.

Vocational Agriculture Service, College of Agriculture, University of Illinois, 1401 South Maryland Drive, Urbana, Illinois 61801:

Agribusiness Selling Series. Six slide film series covering product knowledge, product competition, a market for your product, displaying merchandise, advertising your product, and product cost analysis.

Salesmanship in Agricultural Business. 58 frame slidefilm on personal qualities of a salesman, how to handle a sale, and agricultural business opportunities.

Human Relations in Agricultural Business. 57 frame slidefilm on personality, appearance, etiquette, etc.

Vocational Media Associates, P.O. Box 1050, Mount Kisco, New York 10549-0050:

How to Sell. Video interviewing three sales professionals--what works for them and how the students can apply these techniques.

INDIVIDUAL TEACHER UNIT REVIEW

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A. ADDITIONAL AND UPDATED TEACHING METHODS:

1. Student Activities--

2. Teacher Activities--

3. Evaluation Methods--

B. ADDITIONAL AND UPDATED REFERENCES:

1. Media--

2. Bibliography--

C. ADDITIONAL AND UPDATED RESOURCES INCLUDING ADDRESSES AND PHONE NUMBERS:

1. Resource	Address	Phone

D. WHEN TAUGHT AGAIN I WOULD MAKE THESE CHANGES:

1.

2.

3.

AGRIBUSINESS MANAGEMENT CURRICULUM

UNIT: Advertising Agricultural Products and Services

LENGTH: Four weeks. Select areas of content according to student needs and time available.

WHEN TAUGHT: Grade 11 or 12

OBJECTIVES: The student will be able to:

1. Define the objective of an agricultural product and service.
2. Outline importance of advertising in agriculture.
3. List advantages and disadvantages of an advertising campaign.
4. Identify successful promotional campaigns of agricultural products and services.
5. List the four points of an advertising campaign.
6. List types of advertising media.
7. Develop strategies to effectively advertise an agricultural product or service.
8. Outline budget needs for a successful advertising campaign.
9. Relate advertising campaign to store displays.
10. Design an agricultural display for a product or service.
11. Use computer graphic programs to develop an advertisement.
12. Use computer program to assist with scheduling and budgetary needs of an advertising campaign.

RELATED JOB TITLES AND RELEVANT COMPETENCIES:

Manager of Grain, Fertilizer, Feed and Seed Sales Business	234:21(c), 235:23(h,i), 236:26(e), 236:27(d,e); 28(a,b) 237:33(b,c,d,e), 251:33(c,d,e)
Farm Equipment Salesperson	321:11(a,c,d)
Floriculture - Salesperson	418:2(g)
- Flower Shop Manager	424:3(i)

Campground Manager	502:8(a-e)
Conservation Officer	529:8(a-e)

CONTENT:

I. Purpose of advertising
  A. Define a service
  B. Define a product
  C. Define advertising
    1. Paid forms
    2. Word-of-mouth
    3. Subliminal
II. Advantages and disadvantages of advertising
  A. Advantages
    1. Gain attention
    2. Reach many individuals
    3. Stimulate sales
  B. Disadvantages
    1. Non-personal
    2. Unable to answer all questions a customer may have
    3. Cost
III. Four points of advertising
  A. Attract attention of prospective buyers
  B. Create interest of the product to potential buyer
  C. Build a desire for the product
  D. Motivate buying action
IV. Retail advertising
  A. Media

        1. Newspaper
        2. Radio
        3. Direct mail
        4. Television
        5. Magazines
        6. Billboard
        7. Directories
        8. Yellow pages
        9. Window display
        10. Bumper stickers
        11. Business cards
        12. Telemarketing
        13. Skywriting
        14. Promotional items
        15. Standard signs
        16. Non-standard signs
        17. Transportation media
        18. Cooperative advertising
        19. Other

    B. Costs
        1. Direct costs
        2. Indirect costs

    C. Feasibility of media for a particular product or service
        1. Advertise at the most effective time
        2. Identify specific market
        3. Evaluate effectiveness of specific advertising campaign

V. Wholesale advertising

A. Trade shows

B. Trade magazines

C. Yellow pages

D. Direct mail

E. Business cards

VI. Designing effective advertising

A. Elements of advertising copy

1. Headline

a. attention getting
b. sincere, friendly, truthful

2. Body Copy

a. customer benefits
b. to the point
c. avoid unusual words

3. Illustration

a. product picture
b. other graphics

4. Logotype

a. definition
b. give examples

5. White spaces

B. Newspaper advertising

1. Display

2. Classified

3. Assistance from newspaper personnel in preparation of layout

4. Timing of circulation

a. daily
b. weekly
c. weekend

C. "Spot" radio announcements

1. Time of day to attract particular listening audience

        2. Geographic coverage of radio signal

    D. Direct mail folder

        1. Printing or other methods of duplicating

        2. Envelopes and paper

        3. Postage

        4. Personnel requirements

        5. Personalize with computer programs

        6. Obtaining mailing lists to target specific clientele

    E. Other types of advertising media

        1. Cost feasibility for particular product or service

        2. Personnel requirements

        3. Professional assistance in lay-out of advertisement

    F. Use of computer graphics program to develop advertising campaigns

        1. Sources of computer information

        2. Cost

        3. Integration into total management system

VII. Promotional calendar and budget

    A. Target sales

    B. Percentage of yearly income invested in advertising

    C. Computer programs to develop yearly advertising schedule and budget

        1. Sources

        2. Cost

    D. Evaluate effectiveness of advertising campaign

VIII. Displays

    A. Guidelines

        1. Decorate with the customer's viewpoint in mind

        2. Maintain unity

        3. Keep merchandise and fixtures clean
        4. Choose location for maximum effectiveness

B. Types
    1. Window
    2. Exterior
    3. Interior

C. Procedures for planning and creating
    1. Develop an idea or theme
    2. Select the merchandise
    3. Sketch the display for each season
    4. Implement the display
    5. Evaluate effectiveness

TEACHER ACTIVITIES:

1. Prepare classroom activities.
2. Arrange a field trip to a local advertising firm.
3. Visit local business and critique displays.
4. Supervise student activities.
5. Evaluate student performance.
6. Relate advertising campaign to individual projects.
7. Arrange cooperative projects with the English, Business and/or Art Departments.
8. Other.

STUDENT ACTIVITIES:

1. Keep a notebook containing class notes and materials.
2. Brainstorm methods of advertising.
3. Collect and evaluate agribusiness advertisements.
4. Create an ad for a variety of advertising media.

5. Use video equipment to produce a mock ad for television.

6. Determine prices for a variety of advertising media.

7. Take a field trip to a local advertising agency.

8. Use computer graphic program to develop a direct mail flyer.

9. Visit a local business and critique a display relating to an advertisement.

10. Develop a budget for an ad campaign.

11. Sketch a floor plan maximizing an agricultural product related to an ad campaign.

12. Design and create a window display.

13. Design and create an interior and an exterior display.

14. Design a business card.

15. Create a bumper sticker.

EVALUATION:

1. Notebooks

2. Quizzes and written tests on material

3. Proficiency in planning and developing an ad campaign for a product or service

4. Proficiency in designing a display for a product or service

5. Other

RELATIONSHIP AND APPLICATION TO OTHER UNITS:

Agricultural Mechanics

1. Design a magnetic door sign for a lawn and garden store.

2. Design a yellow pages advertisement for a small gas engines repair shop.

3. Develop a cable television advertisement for a spring over-haul on lawn tractors.

4. Design a flyer for discounts on quantity parts.

5. Develop a newspaper advertisement for blade sharpening of lawn mowers.

Animal Science

1. Design a display for advertising agricultural products at a horse show.
2. Set up a display for a feed and grain store.
3. Design a stud flyer.
4. Design a bumper sticker for a breed of animals.
5. Prepare a brochure for a rabbit show.

Natural Resources

1. Design a brochure advertising a campground.
2. Design a guide book for a nature center.
3. Prepare a sales poster for maple syrup products.
4. Develop a radio advertisement to sell Christmas trees.
5. Prepare a television advertisement for a logging company.

Plant Science

1. Set up a holiday greenhouse display.
2. Develop a year-round advertising campaign for a florist.
3. Video an advertisement for a Vocational Agricultural nursery.
4. Design a business card for an Interior Landscape business.
5. Develop a seasonal flyer for a lawn care business.

RESOURCES:

1. Trade magazines
2. Cooperative projects with English, Business and/or Art Departments
3. Local advertising agency
4. Newspaper agency
5. Public Access television
6. Other

72

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Berginger, Louis. Profitable Garden Center Management. Reston, Virginia: Reston Publishing Co., Inc., 1982.

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Edwards, Charles, M. Jr. and Carl F. Lebowitz. Retail Advertising Sales Promotion. Englewood Cliffs, New Jersey: Prentice-Hall, Incl., 1979.

Hartley, Robert F. Retailing: Challenge and Opportunity. Houghton Mifflin Co., 1980.

Pfahl, Peter B. The Retail Florist Business. Danville, Illinois: The Interstate Printers and Publishers, Inc., 1983.

Plank, Harry. Advertising and Promotion of Agricultural Products. Ohio Agriculture Education Curriculum Materials Service, The Ohio State University, Room 254, 2120 Fyffe Road, Columbus, Ohio 43210, 1976.

Plank, Harry. Marketing Agricultural Products. Ohio Agriculture Education Curriculum Materials Service, The Ohio State University, Room 254, 2120 Fyffe Road, Columbus, Ohio 43210, 1976

MEDIA:

Creative Educational Video, 5147-A 69th Street, P.O. Box 65265, Lubbock, Texas 79464-5265:

Advertising--Broadcast. Video.

Advertising--Print. Video.

Direct Marketing. Video.

Starting and Running Retail Stores. Video.

Target Markets. Video.

Vocational Media Associates, P.O. Box 1050, Mount Kisco, New York 10549-0050:

Advertising: Tricks of the Trade. Video.

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2.

3.

AGRIBUSINESS MANAGEMENT CURRICULUM

UNIT: Agribusiness Retail Procedures

LENGTH: Four weeks. Select areas of content according to student needs and time available.

WHEN TAUGHT: Grade 11 or 12

OBJECTIVES: The student will be able to:

1. Describe safe procedures when operating and transporting agribusiness office equipment.
2. Define terminology.
3. Create a friendly atmosphere when greeting customers.
4. Compare appropriate and inappropriate employee behavior when dealing with customer concerns.
5. Disclose criteria for developing sales tickets.
6. Describe sales ticket filling procedures.
7. Outline the steps in making a cash or check transaction.
8. Determine daily cash balances.
9. Evaluate bank statements.
10. Identify parts of a credit application and a statement.
11. Identify parts of a purchase order.
12. Outline inventory procedures.
13. Describe the relationship between margin and mark-up.
14. Outline the principles of balancing sales and purchasing records.
15. List the types of agribusiness losses.
16. Describe the means available for redeeming losses.
17. Specify agribusiness office equipment parts and functions.
18. Demonstrate use of agribusiness office equipment.
19. Perform business-telephone etiquette.

RELATED JOB TITLES AND RELEVANT COMPETENCIES:

Grain, Fertilizer, Feed and Seed Sales Business Occupations	238-251
Partsperson in Farm Machinery Dealership	306:1(a-d), 307:2((a-g), 307:3(a-k), 308:4(a-p), 308:5(a-g), 308:6(a,b) 309:7(a-g), 309:8(a-y)
Pet Shop Worker	273:1(a-i), 273:2(a-r), 275:10(a-e), 275:11(a-i), 276:16(a-h)
Floriculture - Delivery Person - Salesperson - Flower Shop Manager	415:1(a-f), 415:2(a-h) 417:1(a-e), 417:2(a-h) 423:3(a-j)
Retail Landscape and Garden Center Salesperson	442:1(a-j), 442:2(a-m)
Farm Equipment Salesperson	319:2(a-l), 320:3(a-c), 320:4(a-f), 321:7(a-c), 321:9(a,b), 321:11(a-d)

CONTENT:

I. Terminology

   A. Credit

   B. Margin

   C. Receipt

   D. Depreciation

   E. Mark-up

   F. Retail

   G. Inventory

   H. Overhead

   I. Wholesale

II. Agribusiness customer transactions

   A. Developing a positive sales attitude and approach

   B. Developing knowledge of products

- C. Creating an atmosphere for selling
- D. Dealing with customer concerns

III. Preparing the sales tickets

- A. Determining pricing policies
    1. Parent company policies
    2. Independent store managers' policies
- B. Writing sales tickets
    1. Itemizing products
    2. Special considerations
        - a. delivery
        - b. packaging
        - c. service charge
        - d. aging accounts
    3. Sales tax
        - a. determining the sales tax
        - b. determining sales tax exemptions
    4. Allowing for discounts
        - a. cash allowances
        - b. quantity breaks
        - c. early season allowances
        - d. bulk rates
    5. Determining the customer's final cost
- C. Filing sales tickets

IV. Handling cash and checks

- A. Using the cash register
    1. Cash register parts identification and functions
    2. Safe and proper use of the cash register
    3. Correctly making change
- B. Closing-out the cash registers
- C. Determining the daily cash balance

- D. Endorsing checks
- E. Making bank deposits
- F. Writing and using business checks
- G. Auditing the bank statement

V. Handling billing and credit procedures

- A. Credit application form
  - 1. Identifying application parts
  - 2. Using credit services to check customers' credit histories
- B. Billing credit customers
- C. Statements
  - 1. Identifying parts of the statement
  - 2. Evaluating the statement for customers with questions
- D. Purchase orders
  - 1. Identifying parts of a purchase order
  - 2. Accepting a purchase order for payment

VI. Controlling inventory

- A. Defining inventory
- B. Keeping accurate inventory records
  - 1. Physical
  - 2. Ledger style
  - 3. Computerized system
- C. Determining inventory replacement

VII. Determining margins and mark-ups

- A. Defining margin and mark-ups
  - 1. Markup = profit - cost to store

75

    2. Margin = profit - retail price

Or

    3. Markup = margin - cost of goods sold

    4. Margin = markup x cost of goods sold

  B. Calculating depreciation

  C. Calculating wholesale cost and freight charges

  D. Calculating overhead costs

  E. Establishing mark-up and margin

VIII. Sales and purchasing records

  A. Recording cash receipts

  B. Recording cash payments

  C. Evaluating accounts receivable

  D. Evaluating accounts payable

    1. Check merchandise for quality and number

    2. Credits applied

    3. Past due

  E. Proper and efficient account balancing

    1. Longhand/ledgerbook

    2. Computer

    3. Accountant

IX. Dealing with losses

  A. Types

    1. Shoplifting

    2. Unpaid bills

    3. Employee theft

    4. Damages

        a. Natural (spoilage)

        b. Unnatural (fire, earthquake)

    5. Legal fees

B. Loss recourse

    1. Shoplifting

        a. out of store confrontation
        b. police action

    2. Unpaid bills

        a. communication between manager and customer
        b. cash on delivery (C.O.D.)
        c. management/customer written agreement
        d. small claims court

    3. Employee theft

        a. confrontation
        b. consequences
            1. possible termination from job
            2. arrest
            3. reference/record liability

    4. Damage (natural or unnatural)

        a. insurance
        b. line item in the annual budget

    5. Fees

        a. line item in the annual budget
        b. fixed/variable cost

X. Equipment use

    A. Types

        1. Cash register

        2. Adding machine

        3. Electronic calculator

        4. Computer

        5. Microfiche viewer

        6. Copy machine
        7. FAX machine
    B. Parts identification
    C. Safety procedures
    D. Use of the machine
    E. Telephone
        1. Telephone systems
        2. Business telephone etiquette
            a. answering the telephone
            b. initiating the conversation
            c. terminating the conversation
            d. taking and delivering messages
        3. Efficient business use of the telephone

XI. Retail agribusiness image
    A. Stocking shelves
    B. Maintaining a proper sales environment
        1. General cleaning
        2. General structural maintenance
    C. Checking security systems.
    D. Employee appearance
        1. apparel
        2. hygiene

TEACHER ACTIVITIES:

1. Present safety rules and procedures.
2. Hand out prepared directions and worksheets.
3. Use lecture and discussion sessions to present theory.
4. Demonstrate the correct operating procedures of agribusiness equipment.
5. Observe and supervise student activities.

6. Evaluate students' knowledge and understanding of theories and skills by using written tests, quizzes, and student demonstrations.

7. Secure materials to complete projects.

8. Arrange field trips to agribusinesses.

9. Enlist people from the agribusiness field to be guest speakers.

10. Schedule "Job Shadowing" situations with students and agribusiness personnel.

11. Create role playing situations:

    a. customer/employee situations
    b. employee/employer situations.

12. Make available agribusiness equipment on which students may practice.

13. Use video equipment:

    a. film field trips
    b. film role plays
    c. film guest speakers.

14. Utilize computerized agribusiness record keeping systems.

15. Use visual aids to explain agribusiness equipment operation and procedure.

16. Work with other teachers in the school/district/state.

17. Develop Supervised Agricultural Experience Programs in the agribusiness field.

STUDENT ACTIVITIES:

1. Follow all safety procedures.

2. Keep a notebook of all handout materials, class notes, quizzes and tests.

3. Participate in classroom and laboratory exercises.

4. "Shadow" an agribusiness employee or employer for part of or a whole day to become more aware of the specific tasks required of agribusiness personnel.

5. Summarize or critique all fieldtrips.

6. Complete questions pertaining to agribusiness fieldtrips that the teacher writes or that the students help write.

7. Inventory a section of the Vocational Agriculture Department: Agricultural Mechanics, Plant Science, Animal Science, Natural Resources, Aquaculture.
8. Complete written exercises dealing with different aspects of agribusiness procedures and records.
9. Enter the FFA Agricultural Sales Contest.
10. Role play an agribusiness procedural experience.
11. Use computer assisted inventory control programs, business analysis programs, sales ticket programs.
12. Video tape field trips and role playing activities.
13. Develop questions to ask agribusiness guest speakers.
14. Practice proper telephone etiquette.

EVALUATION:

1. Notebook organization
2. Classroom quiz and test
3. Lab sheets and exercise sheets
4. Field trip questions and summary
5. Student demonstrations

RELATIONSHIP AND APPLICATION TO OTHER UNITS:

Agricultural Mechanics

1. "Job shadow" a partsperson in a farm machinery dealership.
2. Create an inventory of all shop tools and agricultural shop equipment.
3. Practice using retail agribusiness equipment in a role-playing situation. Use the microfiche, computer, cash register and other.
4. Develop a list of resume skills which deal with the agricultural mechanics agribusiness field.
5. Role-play different employee/customer agribusiness transactions.

Animal Science

1. "Job shadow" a pet shop worker, dog groomer, kennel worker or feed and supply store worker. Evaluate skills and competencies required in these jobs.

2. Create a feed and supply inventory of your vocational-agriculture center's animal lab.

Natural Resources

1. "Job shadow" a retail fish cutter or agri-chemicals salesperson to learn about skills needed to be successful in the agribusiness career.

2. Design your own "day-in-the-life" of a natural resource retail agribusiness.

3. Develop your "day-in-the-life" into a skit or role playing model.

4. Practice sales techniques with other members of your class.

5. Using all agribusiness retail procedures, institute a fish marketing program at your school.

Plant Science

1. "Job shadow" a florist, greenhouse worker, apiculturist or garden center worker.

2. Create an inventory of all plant science tools, equipment and plants.

3. Institute a sales program of flowers and plants for sale from your vocational-agriculture center greenhouse.

4. Develop a list of resume skills which deal with retail agribusiness procedures in the plant science area.

5. Practice the floriculture sales contest in class.

RESOURCES:

1. Computers
2. Computer programs
3. Video camera and monitor
4. Worksheets
5. Audio-visual materials
6. Agribusiness personnel

84

7. Agribusinesses (feed companies, tack shops, tractor dealerships, florists, greenhouses, other)

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American Farm Bureau Federation, 225 Toughy Avenue, Park Ridge, Illinois 60068:

Farm Facts (1988-89). Information booklet.

Department of Agricultural Education, Iowa State University, Ames, Iowa:

Agribusiness Management and Operation (1988). Curriculum guides.

Doster, D. Howard, William H. Hamilton and Donald F. Connelly. The Creative Young Entrepeneur (1988). The Three Entrepeneurs, Inc., 11 Circle Lane, West Lafayette, Indiana 47906.

Instructional Materials Laboratory, 10 Industrial Education Building, University of Missouri, Columbia, Missouri 65211:

Agricultural Business Sales and Marketing (1984). Catalog number AG-51-I. Information booklet.

Kimbrell, Grady and Ben S. Vineyard. Succeeding in the World of Work. Bennet & McKnight (Division of Glencoe Publishing Co.), 17337 Ventura Boulevard., Encino, California 91316, 1986.

Ohio Agricultural Education Curriculum Materials Service, The Ohio State University, 2120 Fyffe Road, Room 254, Columbus, Ohio 43210:

Agricultural Business Supply and Service (1976). Information booklet.

Marketing Agricultural Products (1976). Information booklet.

Agricultural Business Procedures and Records (1976). Information booklet.

Reibstein, David J. Marketing--Concepts, Strategies & Decisions. Englewood Cliffs, New Jersey: Prentice-Hall, Inc. 1985.

Roy, Ewell P. Exploring Agribusiness. Third edition. The Interstate Printers and Publishers, Inc., P.O. Box 50, Danville, Illinois 61834-0050.

State of Iowa, Department of Education, Bureau of Career Education, Grimes State Office Building, Des Moines, Iowa 50319:

Agribusiness Management and Operation (1988). Instructional materials. Individual units:

Horticulture Sales, Agriculture Sales, Livestock Sales, and Crop Sales.

MEDIA:

AG-PAC, 427 Grand Canyon Drive, Madison, Wisconsin 53719:

Depreciation and Appreciation. Computer software #AP 536--$59.00 Designed to enable student to compare the effects of different depreciation schedules and varying depreciation assets.

American Association for Vocational Instructional Materials, 120 Driftmier Engineering Center, Athens, Georgia 30602:

Agri-Data Base. Computer Software--$75.00. Creates mailing lists, inventories, equipment files, etc.

Types of and Calculating Depreciation. Computer Software--$39.50. Teaches students how to calculate the four basic types or methods of depreciation.

Values, Decisions, Success. Video. Shows students how values can lead to success on the job.

Creative Educational Video, 5147-A 69th Street, P.O. Box 65265, Lubbock, Texas 79464-5265:

Product Management. Video. Presents five stages of product life cycle.

Marketing Communications. Video. Highlights importance of communication and sales skills.

Vocational Education Productions, California Polytechnic State University, San Luis Obispo, California 93407:

Agricultural Marketing. Filmstrip 1-810-133J--$19.95. Covers hedging, cash forward contracts, cooperative bargaining and commodity groups.

INDIVIDUAL TEACHER UNIT REVIEW

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A. ADDITIONAL AND UPDATED TEACHING METHODS:

1. Student Activities--

2. Teacher Activities--

3. Evaluation Methods--

B. ADDITIONAL AND UPDATED REFERENCES:

1. Media--

2. Bibliography--

C. ADDITIONAL AND UPDATED RESOURCES INCLUDING ADDRESSES AND PHONE NUMBERS:

1. Resource	Address	Phone

D. WHEN TAUGHT AGAIN I WOULD MAKE THESE CHANGES:

1.

2.

3.

AGRIBUSINESS MANAGEMENT CURRICULUM

UNIT:	Computers in Agriculture
LENGTH:	Four weeks. Select areas of content according to student needs and time available.
WHEN TAUGHT:	Grade 11 or 12
OBJECTIVES:	The student will be able to:

1. Describe safe procedures when operating and transporting the computer.
2. Define terminology.
3. Identify procedures to create and modify directories.
4. State how computer commands are executed within the system.
5. Perform dos commands.
6. Use the owner's manual as a guideline for operating the computer.
7. Use reference manuals for program modification.
8. State sources of computer software.
9. List criteria for purchasing computer hardware.
10. List criteria for purchasing computer software.
11. Construct and use a database.
12. Produce reports from a database.
13. Generate documents with a word processor.
14. Construct a spreadsheet program.
15. Edit a spreadsheet program.
16. Print out documents from a spreadsheet program.
17. Evaluate computer produced data.
18. Record their supervised agricultural experience on a computer.
19. Produce labels.
20. Determine computer applications suitable for agricultural projects.

RELATED JOB TITLES AND RELEVANT COMPETENCIES:

Dairy Farm Manager	49:1(a-e), 50:6(d), 51:7(d), 52:10(g-h), 52:13(a), 54:15(a), 54:17(a-g), 54:18(c-d), 55:19(e-f)
Manager of Grain Fertilizer, Feed and Seed Sales Business	234:20(a,d), 234:21(d), 235:22(c), 235:24(c,d), 236:29(a), 237:34(a-e)
Sales and Service Representative	247:20(a), 247:21(b-d), 248:23(a), 249:24(c,d)
Partsperson in a Farm Machinery Dealership	306:1(c), 308:4(c,l,n)
Forestry Technician	484:2(c), 484:3(d,e,f,j), 484:4(b), 484:5(c,e), 485:7(a,f), 485:8(d), 486:12 (c), 486:14(h,i)
Landscape Planning Aide	488:7(c-f)

CONTENT:

- I. Basics
  - A. Safety with computers
  - B. Terminology
  - C. Keyboard usage
  - D. Startup procedures
  - E. Computer operation
  - F. Backup procedures
  - G. Configuration of computer
  - H. Moving around the computer
  - I. System projection
  - J. Owner's manual
  - K. Reference materials
- II. Applications
  - A. Record keeping
  - B. Budgeting

- C. Decision Making
- D. Networking
- E. Income statements
- F. Expenses statements
- G. Net worth statements
- H. Profit and loss statements

III. Computer systems

- A. Determining needs
- B. System compatibility
- C. Cost
- D. Operation

IV. Hardware

- A. Floppy drives
- B. Hard drives
- C. Memory
- D. Video Choices
- E. Machine Speeds
- F. Compatibility
- G. Modems
- H. Printers
- I. Custom billing and communication
- J. Tax and account billing

V. Software

- A. Sources
- B. Cost
- C. Determining needs
- D. Laws

E. Spreadsheets
    1. Programs available
    2. Program cost
    3. Usage
    4. Producing documents
F. Databases
    1. Programs available
    2. Program cost
    3. Usage
    4. Creating Labels
    5. Custom reports
    6. Built-in reports
    7. Data evaluation
G. Word processing
    1. Programs available
    2. Program cost
    3. Usage
    4. Mail merging
    5. Creating labels
    6. Printing documents
H. Production Records
I. Mailing lists
J. Labels
K. Accounting
L. Custom programming
M. Commercial programming

VI. Purchasing

  A. Visit with prior users

  B. Match system with requirements

  C. Program selection

  D. Dealer support

  E. Accessories

VII. Utilizing data

  A. Obtaining printouts

  B. Evaluating printed data

  C. Implementing decisions from processed data

TEACHER ACTIVITIES:

1. Present safety rules and procedures.
2. Explain how agriculture requires as much or more information than managers of other enterprises.
3. Design a series of practical agricultural computer applications.
4. Present computer terminology.
5. Observe and supervise student activities to ensure proper skill development.
6. Use visuals to explain computer operation and procedures.
7. Create a checklist to keep a schedule of student skills successfully completed.
8. Demonstrate the use of reference books to solve computer problems.

STUDENT ACTIVITIES:

1. Follow all safety procedures.
2. Keep a notebook of handout materials and class notes.
3. Use a computer-tabulated record-keeping program as part of a supervised agricultural experience.

4. Interpret a commercial computer printout such as DHIA record-keeping data.

5. Use a modem to connect an agricultural business to the classroom lesson.

6. Observe a commercial dairy operation where cows are wired for sound. Compare the results of different production level animals and note how their differences are evaluated.

7. Solve a constructed problem on the computer and by hand. Compare the amount of time required by each.

8. Complete a series of applications using commercially available software.

9. Perform a series of reports to reflect a custom application of computer software.

10. Participate in classroom and laboratory exercises.

11. Compile a list of agricultural occupations which use computers in their daily operation.

12. Interview a local farmer or agribusiness person who uses a microcomputer and give a short report to the class.

EVALUATION:

1. Notebook organization and materials completed

2. Classroom tests and quizzes on skills developed

3. Lab sheets

RELATIONSHIP AND APPLICATION TO OTHER UNITS:

In addition to commercially available programs, computer usage can be integrated into units of instruction. The following suggestions may prove useful when incorporating computers into the curriculum.

Agricultural Mechanics

1. Create an inventory of agricultural supplies and equipment and up-date periodically.

2. Construct a parts program to simulate a small gas engine shop. As parts are used and repairs completed, up-date inventory and order new parts.

3. Use repair slips to detail maintenance performed on equipment brought into the shop. Assign an hourly rate and keep records on repairs and maintenance completed.

4. Inventory skills developed starting with the freshman year and add skills as they are acquired.

Animal Science

1. Compile a list of available farm equipment and construct a depreciation schedule according to the latest IRS procedures.

2. Construct a record-keeping program indicating production, income, expenses and other pertinent historical information.

3. Document the efficiency of an animal--such as feed per dozen eggs produced, weight gain, number of young weaned, weaning weights and number of young marketed.

4. Within an agribusiness setting, review an animal's past history. The situation could simulate an office where a technician up-dates a database with information supplied by the customer about his/her animal.

5. Inventory skills developed starting with the freshman year and add skills as they are acquired.

Natural Resources

1. Create an inventory of natural resources supplies and equipment and up-date periodically.

2. Calculate error of closure results to determine the accuracy of field surveying.

3. Create a forest management program to accumulate data collected in the field. Include information such as tree species, dbh, number of logs, board footage and marketing information.

4. Collect information on a wildlife project, recording data on wildlife captured or observed, food type and availability. Assemble population census data, enter data into the computer and generate reports.

5. Inventory skills developed starting with the freshman year and add skills as they are acquired.

Plant Science

1. Construct a crop history of nursery stock or greenhouse crops from planting date to marketing.

2. Keep financial records to determine cost of production, markup of plant, and profit margin of crops.
3. Create an inventory of plant science supplies and equipment, and up-date periodically.
4. Inventory skills developed starting with the freshman year and add skills as they are acquired.
5. Prepare a financial proposal for a landscaping project.

RESOURCES:

1. Computers
2. Software for student use
3. Worksheets for students to complete
4. Textbooks for reference
5. Audio-visual materials
6. Floppy disks

BIBLIOGRAPHY:

REFERENCES:

Delmar Publishers, Inc., 2 Computer Drive, West, Box 15015, Albany, New York 12212-5015:

A Guide to Programmming the IBM Personal Computers, 2nd Edition. Covers computer arithmetic, programming techniques, handling files plus searching and sorting.

Doster, D. Howard, William H. Hamilton and Donald F. Connelly. The Creative Young Entrepeneur (1988). The Three Entrepeneurs, Inc., 11 Circle Lane, West Lafayette, Indiana 47906.

Global Computer Supplies, 11 Harbor Park Drive, Port Washington, New York 11050:

The ABC's of MS DOS. Describes the basic heart of the disk operating system.

Hobar Publications, 1234 Tiller Lane, St. Paul, Minnesota 55112:

Computers in Farming. What a computer system includes, how it operates and the computer's role as part of a business information system.

Microcomputer Applications for Students of Agriculture. Deals with problems unique to agriculture. Its aim is to introduce microcomputers and their associated software as agricultural tools.

Microcomputing in Agriculture. Microcomputer components, a four-step approach to basic literacy; 30 examples of uses of microcomputing on the farm and in agribusiness.

The Farm Computer. Introduction to computers. How to select a computer system, computer networks, programming, lists periodicals.

Instructional Materials Service, Department of Education, Cornell University, 24 Roberts Hall, Ithaca, New York 14853-5901:

Introduction to Computers in Agriculture. Contains information on types of computers, computer terminology and operating the computer.

Updated Inventory of Agricultural Computer Programs. Lists 1500 computer programs for agriculture, forestry and veterinarian materials. Information includes program name, program description, intended user, brand of machine they run on and the name of the contact person.

Interstate Publishers, Inc., P.O. Box 50, Danville, Illinois 61834-0050:

Doane's 1989 Ag Computing Software Directory. Provides a handy, comprehensive reference on the what, where, how and who of farm computer software. Lists 650 commercial programs available for on-farm use.

Doane's Ag Computing Source Book. 296 page guide on starting, using and expanding on-farm computer systems. Covers how the computer works, tips and techniques for getting the most out of the computer, selecting hardware, software and add-ons.

Egertson, Eric C., Developing Computer Skills - Operating Principles and Software. Designed to teach the basics of using a computer. A teacher's guide is also available.

Oklahoma State Department of Vocational and Technical Education, Curriculum and Instructional Materials Center, 1500 West Seventh Avenue, Stillwater, Oklahoma 74074-4364:

dBase III Plus - Advanced. Linking and updating multiple files, inputting and outputting to other programs, writing simple programs, system design and program development, application generator.

dBase III Plus - Beginning Course. Database concepts. Using the dBase III Plus assistant, creating a database, adding data to a database file, modifying data in a database file, report and mailing label preparation, memory variables, operations and functions, sorting and indexing files, data entry forms.

Lotus 123 - Advanced. Advanced worksheet and range command skills, advanced copy and move command skills, advanced file and print command skills, keyboard macros.

Lotus 123 - Beginning Course. Getting started with Lotus, moving around the worksheet, typing cell entries, using 123 commands, indicating cell ranges, building a worksheet, building a simple database, writing formulas, formatting a worksheet, supplemental worksheet exercises.

WordPerfect 5.0. Getting started, underline, bold, centering, reveal codes, printing, cursor movement, page breaks, spell check, search, thesaurus, tables and columns.

Vocational Agriculture Service, College of Agriculture, University of Illinois, 1401 South Maryland Drive, Urbana, Illinois 61801:

Selecting Agricultural Computer Software. 12 pages describing what to consider when purchasing software for agricultural enterprises and agribusiness.

MEDIA:

Bergwall Productions, P.O. Box 238, Garden City, New York 11530-0238:

Guide to Microcomputing. 60 minutes of VHS Video. Describes what a computer does, internal and external memory, how to power up and boot up, how to load and save a disk, provides examples of how hardware and software skills are brought together to program or operate a computer.

The IBM-PC Explained. 70 minutes of VHS Video. Describes IBM components and their connections, programs which operate the personal computer, introduces basic programming.

Career Development Software, Inc., 207 Evergreen Drive, Vancouver, Washington 98661:

Advance Computer Terminology. VHS Video. Helps new computer users understand the terminology, computer operations and functions in the computing department.

Beginning Computer Terminology. VHS Video. Helps new computer users understand the terminology, computer operations and functions in the computing department.

Computer Operations Series. VHS Video. Students will learn computer operational procedures with this full motion guide. Students are introduced to the configuration and operation of computers.

Learning DOS. Learn basic DOS commands with this video as well as use of the keyboard, avoiding common errors, basic computer techniques and connecting components of a PC.

Making the Right Choice. VHS Video. Covers PC monitors, CPU's keyboards and printers.

Global Computer Supplies, 11 Harbor Park Drive, Port Washington, New York 11050:

dBase III+ (database program), *Lotus 123* (spreadsheet program), *MS-DOS* (disk operating system), WordPerfect (word processing program). Two hour tutorial audio cassettes.

Using dBase III+, *Using Lotus 123*, *Using Wordstar*, *Using Your IBM PC*. Two hour tutorial VHS Video Tapes.

Guidance Associates, Inc., Communications Park, Box 300, Mount Kisco, New York 10549:

Computer Hardware: What It Is and How It Works. 50 minute filmstrip on Video. Examines each step of computer operation from input through information storage and processing to output.

Computer Software: What It Is and How It Works. 60 minute filmstrip on video. Program describes how certain types of software guides internal operations while others bridge the language gap between humans and computers.

Computers: From Pebbles to Programs. 37 minute filmstrip on video. Gives a complete picture of computers, how they were developed and what they do.

Learning Concepts: Introduction to Personal Computers. 53 minute live action video. Demonstrates how easy personal computers are to use and introduces common computer terms. Show applications databases, word processing, spreadsheets and graphics.

The Computer: What It Can Do - And Can't Do. 45 minute filmstrip on video. Show students exactly how computers work and demonstrates such specific computer applications as record keeping, data transmission, telecommunications and product design.

Word Processing on Your Microcomputer: From Keyboard to Printout. 59 minute filmstrip on video. Illustrates basic concepts using images of actual keyboards and monitors. Explores word processing commands.

Instructional Materials Service, Department of Education, Cornell University, 24 Roberts Hall, Ithaca, New York 14853-5901:

Computer Programs on SOE Record Keeping. For Apple Computer. Guides students through a microcomputerized version of SAE record keeping. Also includes a teacher utility disk.

Opportunities for Learning, 20417 Nordhoff Street, Chatsworth, California 91311:

Computer Operations. A series of filmstrips designed to introduce the new user to the basic operational features of computers. Each presentation outlines the step-by-step start up procedures for bringing the computer into full operation.

How the Computer Works. 3 filmstrips with 3 audio cassettes. The set provides a detailed picture of how computers work. Outlines the various components of a computer system including memory storage and input/output devices, demonstrates programming with a graphic illustration of how a program is executed inside a computer.

RMI Media Productions, Inc., 2807 West 47th Street, Shawnee Mission, Kansas 66205:

Introducing Computers - Learning the Lingo. 39 minute video. The program clearly explains hardware, the central processing unit, software, the disk operating system, memory storage, and computer communications.

Using dBase III Plus - IBM PC and Compatibles. 60 minutes. From database record keeping to writing a program for a printed report. Covers extended applications of dBase III Plus.

Using Lotus 1-2-3 - IBM and Compatibles. 60 minutes. Covers all basic spreadsheet and macro programming capabilities of Lotus and the use of integrated databases.

Using the IBM-PC. 100 minutes. A comprehensive system of video training on the use and operation of the IBM-PC compatibles. A primer for beginners including assembling the equipment, printer options, choosing software and some basic programming language.

Using Wordstar. 60 minute video. Covers the major features of this word processing application; basic cursor movement, word wrap, margins and tabs, formatting, copying plus many other features.

Video Dos. 60 minute video. A trainer for hard disk and floppy computers that use dos release 2.1 or above. Begin with the concept of "default drives" and learn the many dos capabilities including creating files with edlin and custom prompts.

Vocational Media Associates, P.O. Box 1050, Mount Kisco, New York 10549-0050:

An Introduction to Word Processing: How to Edit and Format. 58 minute filmstrip on video. Whatever software or hardware students use, this presentation shows them what to expect from their program.

Basic: An Introduction to Computer Programming. 74 minute filmstrip on video. Easy to understand presentation teaches the principles of programming in the basic language.

How to Write a Program in Basic: A Step by Step Guide. 74 minute filmstrip on video. Easy to understand presentation teaches the principles of programming in the basic language.

The Operations of a Data Processing Center. 108 minute filmstrip on video. Data processing, an introduction to the computer system, data communications, applications programming, developing a system, data processing and the user.

Your Apple Computer: A User's Guide. 64 minute filmstrip on video. Hundreds of illustrations identifying important Apple functions. Students see how DOS (Disk Operating System) works, how to initialize disks, save files, copy disks and how to use software for word processing, data management and spreadsheets.

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1. Student Activities--

2. Teacher Activities--

3. Evaluation Methods--

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1. Media--

2. Bibliography--

C. ADDITIONAL AND UPDATED RESOURCES INCLUDING ADDRESSES AND PHONE NUMBERS:

1. Resource	Address	Phone

D. WHEN TAUGHT AGAIN I WOULD MAKE THESE CHANGES:

1.

2.

3.

AGRIBUSINESS MANAGEMENT CURRICULUM

UNIT: Agriculture in the International Marketplace

LENGTH: Four weeks. Select areas of content according to student needs and time available.

WHEN TAUGHT: Grade 11 or 12

OBJECTIVES: The student will be able to:

1. Define terminology related to international marketing.
2. State the influence climate and weather conditions have on producing agricultural products.
3. Specify factors which influence world prices of agricultural products.
4. Cluster global marketing opportunities for agricultural products.
5. List what affects global market restrictions have on world trade.
6. Outline some of the principle obstacles to international business.
7. Detail the affect of transportation on the production of agricultural products.
8. Designate strategies to encourage foreign trade.
9. Classify foreign markets based on primary goods produced.
10. Disclose criteria to be considered for developing a foreign agricultural market.
11. Describe the interaction of foreign policies when marketing agricultural products.

RELATED JOB TITLES AND RELEVANT COMPETENCIES:

International Business:
Commodities Trade
Import-Export Trade

CONTENT:

I. Terminology

   A. Balance of payments

   B. Balance of trade

C. Common market

D. Embargo

E. Exchange rate

F. International trade

G. Consumer

H. Developing country

I. Comparative advantage

J. Exports

K. Imports

L. Protective tariff

M. Quota

N. Tariff

O. Quarantine

P. Trade barrier

Q. Technology

R. High technology

S. Absolute advantage

T. Mutual advantage

U. Free trade

V. Dumping

W. Subsidy

X. Predatory pricing

Y. Trigger price

Z. Trade surplus

AA. Non-tariff barrier

II. Importing and exporting

A. Advantages

- B. Disadvantages
- C. Regulations
- D. Sources of information

III. Ability to trade

- A. Natural resources - production areas
    - 1. Climate
    - 2. Topography
    - 3. Soils
    - 4. Technological advancements
- B. Human resources
    - 1. Skilled workers
    - 2. Population distribution
- C. Transportation
    - 1. Location of goods and supplies
    - 2. Modern transportation facilities

IV. Obstacles to trade

- A. Cultural barriers
    - 1. Language
    - 2. Attitude
    - 3. Traditions
- B. Exchange rate
- C. Trade Barriers
    - 1. Tariffs
    - 2. Quotas
    - 3. Balance of payments
- D. Operational problems
    - 1. Customs

    2. Ethics
    3. Import restrictions
  E. Political Environment
    1. Types of governments
    2. Permanency of government policy
    3. Politically sensitive products
  F. Production policies
    1. Subsidies
    2. Pesticides and herbicides
    3. Regulations

V. Strategies to lesson political risk
  A. Joint venture
  B. Expanding the investment base
  C. Licensing
  D. Planned domestication

VI. International cooperation in trade
  A. Organizations
    1. European Economic Community (Common Market)
    2. Latin America Free Trade Association
    3. Central America Common Market
  B. International Treaties: General Agreement on Tariffs and Trade (GATT)
  C. World Bank
    1. International Bank for Reconstruction and Development
    2. International Finance Corporation
    3. International Development Association

VII. Stages of economic development help define market
  A. Agricultural self-supporting

B. Preindustrial or commercial

C. Primary manufacturing

D. Non-durable and semi-durable products manufacturing

E. Capital equipment and consumer durable products manufactured

F. Exporting manufactured products.

TEACHER ACTIVITIES:

1. Hand out prepared directions for each exercise.
2. Observe and supervise student activities.
3. Evaluate student projects.
4. Secure materials to complete projects.
5. Develop a notebook of all class handouts and catalogs.
6. Guide students in using references.
7. Arrange field trips to an agribusiness utilizing the international market.
8. Use lecture and discussion sessions to present theory of unit content.
9. Work with the social studies department to obtain materials and an interaction of information to study the position of agriculture with regard to international trade.

STUDENT ACTIVITIES:

1. Keep a notebook of handout materials and class notes.
2. List ten countries noting their economic stage of development, principal agricultural products produced, and the opportunities to import U.S. agricultural products.
3. Visit an agribusiness that trades in an international market, and learn of opportunities and difficulties in dealing with foreign markets.
4. Select one country in Asia, Western Europe, North America and South America. Compare the stage of agricultural development, topography, climate, transportation, population growth and possible opportunities for marketing US agricultural products.

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5. Choose a country with a stable population and one with a rapidly growing population. Contrast marketing opportunities of these two countries.

6. Pick a country and show how employment and topography affect growing of agricultural commodities.

7. The world population pattern trend is shifting from rural to urban areas. Working in groups, present marketing opportunities for agricultural commodities with the shift in populations.

8. Read several issues of a national financial newspaper and present a report on the importance of agriculture in the world economy.

9. Given an agricultural product, develop a program to market the product in a foreign country.

10. Inventory the community for possible agricultural products that could be exported.

11. Explore the youth programs available for agricultural students to visit agricultural enterprises in foreign lands.

12. Follow the daily foreign exchange table in the Wall Street Journal, New York Times, Investors Daily, or any other newspaper that includes such tables. Note which currencies seem to be rising and which ones are falling in relation to the U.S. dollar. Discuss possible reasons for the fluctuations. Discuss what impact the changes might have on the United States, and on the countries whose currency is rising and falling.

13. Divide the class into several groups and assign a different country to each group. Each group studies the currency and the agricultural production of its assigned country, and prepares charts showing the variations that occur in the assigned country's trading and currency activities. Each group should try to decide whether its nation has a "strong" or a "weak" currency and agricultural production system in relation to other nations.

14. Invite a representative of a commercial bank to visit the class and explain how the bank deals in foreign exchange, how it protects itself against changes in exchange rates, and how business in general is affected by fluctuations in the rates. Be prepared to ask specific questions and to learn the mechanics of currency exchange.

15. Organize a debate on the question of free trade vs. protected trade. Each team researches its issue, looks at all sides of the question, and prepares to argue its case.

16. Make a list of all the foreign produced goods in each student's home. Bring some of these articles labeled with the name of the country to class. Construct charts from lists of goods used by the students' families with a separate chart for each country. Discuss terminology in relation to the displayed products.

EVALUATION:

1. Grade notebook organization and materials completed.
2. Grade classroom tests and quizzes.
3. Evaluate lab sheets.
4. Evaluate assigned classroom projects.
5. Have students complete an evaluation form for each field trip.
6. Give the students the necessary hypothetical data for an agricultural product and have each student develop a marketing program.
7. Develop a matching quiz that would examine each student's knowledge of international marketing terms.
8. Give the students a hypothetical country with specific data about topography, climate, population, government policies and agriculture and have students evaluate the country's potential for importing and exporting agricultural commodities with the United States.
9. Have students list five factors that provide obstacles to developing a foreign trade market and state how each obstacle might be overcome.

RELATIONSHIP AND APPLICATION TO OTHER UNITS:

Agricultural Mechanics

1. Students inventory school equipment, noting in what country the parts are manufactured and assembled.
2. Students visit a dealership who sells equipment manufactured and assembled in a foreign country. Students compile a report on the advantages and disadvantages of selling a foreign product.

Animal Science

1. Students visit an abatoir and prepare a report contrasting the price of imported meat and supplies that can be purchased locally.
2. Using a world map, students plot the major grain producing areas of the world. Each student will determine and report to the group how grain production affects countries' import and export possibilities.

3. Using average production criteria, students determine the possibilities for exporting breeding stock to foreign markets to increase production.

4. Using resources provided on biotechnology, students present the possibilities of growing new production animals in areas with conditions too severe for present known animals.

5. Students outline trade restrictions and how they apply to three international organizations dealing with the importation and exportation of farm animals. Students determine how this would affect establishing a market in each country.

Natural Resources

1. Using forestry publications and articles from financial newspapers, students determine the amount of lumber being exported to foreign markets. Students then determine the effect of exporting this renewable resource on a sustained yield basis.

2. Using resources provided on biotechnology, students present the possibilities of improved forest crops in areas with conditions too severe for present crops grown commercially.

3. Students formulate a plan for exporting a fish farming enterprise to a foreign country to increase the amount of food production in a limited area. Plans include cost effectiveness and feed efficiency in the production of protein.

Plant Science

1. Students work in groups and obtain a world map. With the map, students plot the major production areas of floral and nursery production in the world.

2. Students create a report on interior landscaping ideas that have resulted in new marketing opportunities to foreign countries.

3. Each group of three students contrasts regulations on pesticide usage in the United States and a foreign production area. Students compare how the difference in practices influences marketing costs of the product.

4. Students visit a wholesale florist and determine the source of flowers and draft a report on the advantages and disadvantages of using these sources of floral material.

5. Using resources provided on biotechnology, students present the possibilities of growing new agricultural crops in areas with conditions too severe for present crops grown currently.

RESOURCES:

1. World maps
2. Wall Street Journal
3. Investors Daily
4. American Forestry Association magazines

BIBLIOGRAPHY:

REFERENCES:

Bittel, Lester R., Ronald S. Burke. *Business in Action*. New York: McGraw-Hill, 1980.

Cateora, Philip R. *International Marketing* (1987). Irwin Press, Homewood, Illinois 60430.

Center for Economic Education, One Bishop Circle, Room 247, U-55 University of Connecticut, Storrs, Connecticut 06268:

World Economy and Multinational Corporations. This unit provides students with a knowledge of the fundamental economic concepts related to world trade; an understanding of the magnitude of world trade; a knowledge of the definition and dimensions of the multinational corporation; and an appreciation of the new problems that face countries and business enterprises because of multinational production, distribution and ownership. Contains activity masters, pre- and post-tests and a teacher's guide.

Farm Facts. American Farm Bureau Federation, 225 Touhy Avenue, Park Ridge, Illinois 60068.

Interstate Printers and Publishers, P.O. Box 50, Danville, Illinois 61834-0050:

Hartman, Jack D. *Agricultural Credit - A Global Enigma*. A look at the system of supervised credit for small farmers and rural financial markets in problem areas. it also includes examples of farming operations in foreign countries, discusses loan program in some developing countries and critiques their credit systems.

Thomas, Gerald, Samuel E. Curl and William E. Bennett. *Food and Fiber for a Changing World*. A concise overview of the agricultural industry and all of its segments, as well as the industry's relationship to the world's food and population problem.

McCarthy, E. Jerome, William D. Perrault, Jr. *Basic Marketing* (1987). Irwin Press, Homewood, Illinois 60430.

MEDIA:

Center for Economic Education, One Bishop Circle, Room 247, U-55
University of Connecticut, Storrs, Connecticut 06268:

Economics and the Global Society. Media program documents the growing interdependence among nations. It also examines our values for the future in terms of how we will relate to other countries. Titles include: The Wealth of Nations; Rich Nations, Poor Nations; Economic Evolution. Filmstrips/cassettes, guide included.

Economics in Our World. A multimedia, multiexperience kit that explains and reinforces basic economic concepts and terminology. Titles include: Specializing and Exchanging; We Are All Consumers; Working and Earning; Economic Systems; Money and Exchanges; Labor Unions; International Trade; Government Goods and Services. Eight filmstrips, flashcards, transparencies and guide.

International Economics. A multimedia kit exploring foreign trade. Contains lesson plans for either developing a trade theory or supplementing discussions of trade patterns among nations or trade related issues such as the use of tariffs. Titles of the two filmstrips/cassettes are: "Why Foreign Trade?" and "Money to Trade."

Creative Educational Video, 5147-A 69th Street, P.O. Box 65265, Lubbock, Texas:

International Marketing. 28 minute video. Includes the effect of international trade upon the United States' gross national product; the role of government in international marketing; the concerns in marketing in foreign countries; and changes in attitudes necessary on behalf of United States business people if they wish to compete in foreign markets.

Venard Films, Box 1332, Peoria, Illinois 61654:

Agriculture and New Biology. 29 minute video. Produced by Monsanto, the video covers recent developments in molecular biology and genetic engineering prove to provide new answers to age old problems such as frost, insects, disease and drought.

Biotechnology - Serving Human Needs. 18 minute video. An American Cyanamid video taking an exciting look at the advances made through biotechnology; crops that carry their own resistance to insects, foods that are tastier and more nutritious, and more.

Where the World's Market Faces Coverage. 15 minute video. Describes the function of the Chicago Board of Trade; what "futures" are and the role futures play in the global economy.

INDIVIDUAL TEACHER UNIT REVIEW

This addition to the Curriculum Guide is included after each unit. After teaching this unit instruction, please complete the form below. It is intended to be used by curriculum writers the next time this curriculum undergoes revision. It is also intended for your use as an aid in periodically updating as you continually teach this unit.

A. ADDITIONAL AND UPDATED TEACHING METHODS:

1. Student Activities--

2. Teacher Activities--

3. Evaluation Methods--

B. ADDITIONAL AND UPDATED REFERENCES:

1. Media--

2. Bibliography--

C. ADDITIONAL AND UPDATED RESOURCES INCLUDING ADDRESSES AND PHONE NUMBERS:

1. Resource	Address	Phone

D. WHEN TAUGHT AGAIN I WOULD MAKE THESE CHANGES:

1.

2.

3.

APPENDIX A

RELATED JOB TITLES AND RELEVANT COMPETENCIES

DAIRY FARM MANAGER

Other Titles: Dairy Farmer, Farmer, Dairyman.

Job Description:

The Dairy Farm Manager provides labor and management skills and combines personal abilities with those of others to produce milk efficiently and economically. A person in this occupation must provide and combine skills, technical knowledge, and management to make a profitable dairy production unit. Many dairymen work and manage the home farm on which the family provides most if not all of the labor and management. Other dairy production units are larger and help is employed to provide labor and/or management. Examples of the type of work and management decisions dairy farm unit managers perform are: combining labor, management, land, and capital into a productive unit; deciding which enterprises and the size of enterprise to have; selecting, breeding, feeding, managing, housing, and caring for dairy animals; and producing or purchasing feed for the dairy herd. They must decide where and how to market the production from the herd.

Competencies Identified and Validated

N = 56*

Competencies	Weighted Mean**
1. Keep records.	3.6
a. Maintain breeding records.	3.8
b. Maintain an adequate system of ear tagging, tattooing, etc. for identification purposes.	3.8
c. Keep, analyze, and use production records.	3.7
d. Keep dairy enterprise records and analyze entire dairy operation at least annually.	3.7
e. Keep health records.	3.4
f. Prepare accurate breed registration application forms.	3.2
2. Follow correct milking procedures.	3.6
a. Practice gentle handling of cows.	3.8
b. Stimulate cows correctly for proper milk letdown.	3.7
c. Follow an efficient and regular milking routine.	3.7

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* Responses from 56 Dairy Farm Managers in 12 states. Survey conducted by the Division of Agricultural Education, University of Minnesota, St. Paul, Minnesota 55071.

** 4.0 = Essential; 3.0 = Important; 2.0 = Of Some Importance; 1.0 = Not Important; 0 = Does Not Apply.

	d.	Recognize problems of over and under milking.	3.7
	e.	Break heifers in properly.	3.5
	f.	Milk rapidly.	3.4
	g.	Avoid the unusual at milking time.	3.3
3.		Maintain milking system in good condition.	3.4
	a.	Use milking equipment properly.	3.6
	b.	Check vacuum system and keep operating at correct level.	3.6
	c.	Keep teat inflations in proper conditions.	3.6
	d.	Use proper cleaning and sanitizing techniques.	3.6
	e.	Follow recommended maintenance programs.	3.4
	f.	Know how a milking machine works.	3.4
	g.	Analyze different chemicals for their effectiveness in cleaning and sanitizing.	2.8
4.		Keep mastitis losses to a minimum.	3.2
	a.	Correct situations which cause mastitis to occur.	3.8
	b.	Identify mastitis problems and treat mastitic cows.	3.7
	c.	Use a teat-dipping program to lessen new incidence of mastitis.	3.4
	d.	Use C.M.T. or W.M.T. to identify mastitis problems.	3.0
	e.	Milk cows in order-mastitic cows last.	2.9
	f.	Estimate losses due to mastitis.	2.8
	g.	Use strip cup to spot abnormal milk.	2.8
	h.	Use suitable dry cow treatment. #	
5.		Minimize calf losses by following recommended herd health practices.	3.5
	a.	Recognize possible calving disorders.	3.7
	b.	Assist calf if necessary.	3.6
	c.	Follow sanitation program.	3.5
	d.	Prepare cow and facilities for parturition.	3.5
	e.	Assist cow when calving.	3.3
6.		Identify animals with a health problem.	3.0
	a.	Determine when to call veterinarian.	3.7
	b.	Recognize symptoms of sick animals.	3.7
	c.	Take animal's temperature if illness is suspected.	3.5
	d.	Keep health record on animals.	3.4
	e.	Know common cattle diseases: causes, treatment, and prevention.	3.3
	f.	Identify common parasites.	3.3

Not included on questionnaire but recommended by some experts surveyed.

7.	Treat animals with a health problem.	3.3
a.	Use antibiotics and medications correctly in treating minor health problems.	3.5
b.	Vaccinate, drench, spray, dust, or treat animals as directed by veterinarian.	3.5
c.	Use proper parasite control methods.	3.3
d.	Maintain equipment and health supply inventory.	3.1
8.	Follow programs to reduce or eliminate health problems.	3.1
a.	Follow recommended sanitation practices.	3.5
b.	Follow recommended vaccination program.	3.5
c.	Dehorn calves.	3.3
d.	Dip navels of baby calves in iodine.	3.3
e.	Select and use correct disinfectants as needed.	3.1
f.	Maintain an insect control program.	3.1
g.	Trim animals' feet when necessary.	3.0
h.	Remove extra teats from heifers.	3.0
i.	Clip the underline, udder, and rear flank of cows in production.	2.5
9.	Utilize basic principles of nutrition.	3.4
a.	Provide an adequate water supply.	3.8
b.	Balance ration based on nutrient needs.	3.7
c.	Determine nutritional requirements of growth.	3.4
d.	Determine nutritional requirements of production.	3.4
e.	Determine nutritional requirements of maintenance.	3.4
f.	Determine nutritional requirements of reproduction.	3.3
g.	Determine effect of environment on nutritional requirements.	3.1
10.	Use modern technology to determine least cost and most profitable rations.	3.3
a.	Determine most profitable summer forage program.	3.5
b.	Use home grown grains wisely.	3.5
c.	Make efficient use of forage.	3.4
d.	Select protein supplements which balance home grown feeds at lowest cost per pound of protein.	3.4
e.	Determine amount and kind of grain to be fed, considering milk prices and input costs.	3.4

f.	Determine optimum feeding systems and schedule.	3.3
g.	Calculate amount of feed needed annually.	3.3
h.	Calculate cost of feeding animals and determine income/feed cost.	3.2
i.	Analyze feed tags.	3.2
j.	Prepare needed mineral mixes.	3.1
k.	Match crop system with livestock needs. #	
11.	Provide adequate amount of nutrients for animals.	3.3
a.	Feed producing cows a balanced ration based on nutritive needs.	3.6
b.	Balance and feed proper ration for dry cows.	3.5
c.	Recognize factors which affect nutritive value and palatability of feed stuffs.	3.4
d.	Determine correct calcium-phosphorus ratio.	3.4
e.	Use crude protein and digestible protein data correctly when balancing rations.	3.4
f.	Understand causes of digestive tract disorders and how to prevent them.	3.2
g.	Use feed additives wisely when needed.	3.2
h.	Analyze the concept of "lead feeding" and challenge feeding.	3.2
i.	Collect representative samples of grain and forage for nutrient analysis.	3.1
j.	Use feed test results in balancing rations.	3.1
k.	Determine amounts of non-protein nitrogen in feedstuffs.	3.0
12.	Feed replacement animals for fast, economical growth.	3.0
a.	Recognize problems associated with over or under feeding.	3.5
b.	Select best calf feeding program (whole milk, sour colostrum, or milk replacer).	3.4
c.	Select or prepare an adequate calf starter.	3.3
d.	Feed correct kind and amount of forage.	3.3
e.	Force feed colostrum within thirty minutes of birth.	3.3
f.	Calculate adequate and economical rations for heifers of different sizes.	3.1
g.	Determine correct weaning time.	3.0
h.	Analyze milk replacers for quality.	2.7
i.	Estimate calf's weight accurately (or weigh animal).	2.4
j.	Evalute once-a-day feeding.	2.1
13.	Manage herd for most profitable reproduction.	3.2
a.	Keep breeding and reproductive records.	3.9
b.	Detect cows in heat and determine best time for breeding.	3.8

# Not included on questionnaire but recommended by some experts surveyed.

	c.	Plan and follow constructive breeding programs.	3.8
	d.	Inseminate cow if direct herd service is used.	3.6
	e.	Know the reproductive cycle of dairy animals.	3.5
	f.	Breed cows for twelve month calving intervals.	3.4
	g.	Service heifers with top quality dairy bulls.	3.4
	h.	Determine best time to dry up a cow.	3.4
	i.	Determine causes of infertility.	3.4
	j.	Plan breeding program for even milk production throughout the year or for higher market price periods.	3.3
	k.	Consider the advantages and disadvantages of artificial insemination.	3.3
	l.	Determine age and/or weight at which to artificially inseminate.	3.3
	m.	Identify anatomy of the female reproductive tract and know the function of the tract.	3.2
	n.	Determine losses caused by delay of pregnancy.	3.1
	o.	Check animals for pregnancy.	3.1
	p.	Decide whether to use artificial insemination technician or direct herd service.	2.7
	q.	Estimate the weight of dairy heifers.	2.5
	r.	Know the process of fetal development.	2.3
	s.	Flush animals before breeding to improve conception rate.	1.6
14.		Select breeding and production animals.	3.2
	a.	Select for production and physical traits that are highly heritable.	3.6
	b.	Cull cows that do not meet herd standards.	3.6
	c.	Select sires with high proofs and high repeatability.	3.5
	d.	Evaluate desirable conformation in areas of general appearance, dairy character, body capacity, and mammary system.	3.5
	e.	Use performance and pedigree information in selecting herd replacements.	3.4
	f.	Select most desirable cows from which to raise future replacement animals.	3.2
	g.	Select breeds most appropriate for the dairy farm.	3.1
	h.	Identify parts of the dairy animal and understand their function.	3.1
	i.	Determine how much to pay for replacement animals.	3.1
	j.	Determine losses caused by dairy animals being bred to beef bulls.	2.9
	k.	Determine expected production increases from selecting top quality sires.	2.9

l.	Compare advantages and disadvantages of selecting grade versus purebred cattle.	2.9
m.	Determine best buy per ampule of semen.#	
n.	Determine the most effective herd replacement rate to optimize genetic improvement and understand factors influencing it.#	
o.	Understand and utilize the principles of effective mating structures.#	
15.	Apply basic economic principles.	3.3
a.	Budget available resources (money, land, labor, and capital) into the use of returning the highest final profit.	3.5
b.	Understand use of capital and its relationship to other farm resources.	3.3
c.	Fit dairy operation into the whole farm management system as affected by markets and prices.	3.2
16.	Obtain and use credit wisely.	3.3
a.	Obtain a loan with repayment schedule that can be met.	3.7
b.	Maintain excellent credit rating.	3.7
c.	Understand loan requirements (repayment terms, legal terms, interest charges, security requirements, etc.).	3.5
d.	Realize risks and uncertainties of using borrowed capital.	3.5
e.	Locate sources of financial help in establishing and maintaining a dairy herd.	3.3
f.	Manage family personal expenses wisely.	3.2
g.	Figure total "least cost" credit sources for financing the farm business.	3.2
h.	Consider credit life insurance.	2.4
i.	Realize the importance of borrowing money and using it as a tool.#	
17.	Keep accurate and adequate farm records.	3.2
a.	Keep dairy herd management records (DHIA, health, calving, etc.).	3.7
b.	Keep income and expense records.	3.6
c.	Maintain up-to-date depreciation schedule.	3.3
d.	Determine net farm income.	3.2
e.	Take an accurate inventory.	3.2
f.	Prepare a personal net worth statement.	2.8
g.	Plan for and compute income taxes.	2.8

Not included on questionnaire but recommended by some experts surveyed.

18.	Analyze farming enterprises annually.	3.1
a.	Analyze dairy operations annually.	3.3
b.	Compare dairy farm performance with individual goals and similar farming operations.	3.2
c.	Prepare income statement (profit and loss from current year's operation).	3.0
d.	Calculate rate of return/$ invested, management return, ratio of assets to liabilities, ratio of gross farm income to liabilities.	2.9
19.	Project or plan for the future.	2.9
a.	Determine family goals for the future.	3.1
b.	Plan credit needs for one year with adequate operating resources.	3.0
c.	Plan for use of intermediate and long term credit.	2.9
d.	Calculate total amount of credit required.	2.9
e.	Prepare a budget for the dairy operation (one year).	2.8
f.	Develop a cash flow projection on the dairy operation (3 - 5 years).	2.5
20.	Provide adequate and economical milk handling system.	3.3
a.	Operate milking and economical milk handling system.	3.3
b.	Maintain milking equipment properly.	3.7
c.	Supply adequate and stable vacuum for milking.	3.7
d.	Maintain proper sanitation program.	3.6
e.	Produce milk that meets or surpasses quality standards.	3.6
f.	Operate equipment to properly cool milk.	3.6
g.	Determine best system for their situation.	3.1
h.	Select milking equipment.	3.1
i.	Compare pipeline systems.	3.1
j.	Design milkhouse arrangement for efficient work routine.	2.9
k.	Compare and select milk cooling system.	2.8
l.	Determine if a pipeline or transfer system is needed.	2.6
21.	Provide adequate and economical housing for dairy animals.	3.1
a.	Provide adequate ventilation through fans, intakes, etc.	3.5
b.	Maintain adequate maternity and hospital area.	3.4
c.	Maintain good environment for dairy animals.	3.4

d.	Group calves according to size after weaning.	3.2
e.	Determine ventilation needs of dairy building.	3.2
f.	Keep housing in good repair.	3.2
g.	Use individual calf pens for baby calves.	3.1
h.	Determine housing requirements for animals of different ages.	3.1
i.	Provide sufficient and low cost housing for dairy replacements.	3.1
j.	Develop plans for new dairy facilities.	2.9
k.	Lay out plans for improving existing facility.	2.9
l.	Analyze different systems of dairy housing.	2.8
22.	Provide adequate and economical materials handling equipment.	3.0
a.	Make necessary improvements in manure handling system.	3.4
b.	Plan labor saving chore routine.	3.3
c.	Provide manure handling system.	3.0
d.	Evaluate present manure handling system.	3.0
e.	Calculate amount of storage needed annually.	2.9
f.	Operate and maintain materials handling equipment.	2.9
g.	Provide additional storage as needed.	2.9
h.	Compare methods of manure disposal.	2.8
i.	Determine best feed handling system.	2.8
j.	Compare feed handling systems.	2.6
23.	Determine if and when additional labor should be hired.	3.1
a.	Evaluate own ability to manage labor.	3.3
b.	Recognize when time should be spent on labor management rather than actual labor.	3.2
c.	Figure costs and returns of additional labor in dairy herd expansion.	3.0
d.	Compute changes in labor requirements as size of enterprises change.	2.9
24.	Plan for labor needs.	3.1
a.	Anticipate and prepare for peak work loads in the farm work schedule.	3.4
b.	Assign appropriate priorities to the farm work to be done.	3.4
c.	Plan the daily and weekly work schedule in advance.	3.1
d.	Calculate relative amounts and seasonal distribution of the labor requirements for the entire farm operation by enterprise.	3.0
e.	Plan for the cropping and livestock program to distribute the labor load.	3.0
f.	Know the availability and cost of hired labor during different times of the year.	2.8

	g.	Determine size of operation needed to employ full time help.	2.8
25.		Recruit and hire additional labor.	3.0
	a.	Comply with employers legal responsibilities (Social Security withholding taxes, OSHA., insurance, etc.).	3.4
	b.	Train employees to perform their job adequately.	3.3
	c.	Lead but do not needlessly dominate employees.	3.3
	d.	Compensate employees for work done.	3.3
	e.	Give instructions to employees quickly and clearly.	3.2
	f.	Make definite agreements with hired workers about working conditions.	3.1
	g.	Assign jobs to employees according to their ability and interest.	3.1
	h.	Encourage employees to develop greater abilities.	3.0
	i.	Evalute prospective employees.	3.0
	j.	Meet personal needs of hired workers (housing, recreation, personal goals, etc.).	3.0
26.		Know the dairy industry.	2.6
	a.	Develop production goals for dairy herd.	3.7
	b.	Interpret dairy product standards set by local milk market.	2.9
	c.	Determine how dairy product prices are affected by Federal price supports and marketing orders.	2.7
	d.	Analyze trends in dairy product demand as they affect local markets for producer's milk.	2.4
	e.	Recognize trends in livestock production for local area, state, and nation.	2.4
	f.	Determine how the dairy market is influenced by the export-import system.	2.4
	g.	Identify the importance of the livestock industry and particularly the dairy industry in the local community, state, and nation.	2.4
	h.	Determine factors affecting the location of major livestock enterprises in the state and nation.	2.1
	i.	Determine how the future of dairy prices will be affected by dairy substitutes.	2.0

MANAGER OF GRAIN, FERTILIZER, FEED, AND SEED SALES BUSINESS

Other Titles: Store Manger, Manager Farm Supplies Store, Elevator Manager.

Job Description:

The Manager of a Grain, Fertilizer, Feed, and Seed Business possesses a good knowledge of the various types of farming and ranching including the application of the basic principles of animal, crop, and soil science, agricultural mechanics, economics, and farm and ranch management; is responsible for the workers required to operate the business, defines and supervises duties of employees; is responsible for purchases of products to be sold at a profit, responsible for the repair and maintenance of all buildings and equipment of the business; promotes good customer relations and keeps superiors informed of company progress and problems; with approval of supervisors makes changes in the business as needed based upon trends and experience. Usually employed by privately owned firms, businesses, and organizations.

Competencies Identified and Validated

N = 21*

		Competencies	Weighted Mean**
1.		Possess desirable personal qualities and qualifications.	2.9
	a.	Demonstrate the ability to get along with others.	3.7
	b.	Demonstrate the ability to work on his own.	3.7
	c.	Demonstrate a willingness to work.	3.6
	d.	Demonstrate the ability to project a desirable image for the firm.	3.5
	e.	Demonstrate personal integrity as an employee of the firm.	3.5
	f.	Budget time.	3.0
	g.	Maintain a satisfactory attendance record.	2.7
	h.	Demonstrate desirable job attitude about the organization when working with fellow employees, potential customers, and customers.	2.6
	i.	Demonstrate a willingness to learn or take supervision.	2.6
	j.	Demonstrate the ability to follow directions of supervisor.	2.6

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* Responses from 21 higher management level personnel in Grain, Fertilizer, Feed, and Seed Businesses in 4 states. Survey conducted by Department of Agricultural and Industrial Education, Montana State University, Bozeman, Montana 59715.

** 4.0 = Essential; 3.0 = Important; 2.0 = Of Some Importance; 1.0 = Not Important; 0 = Does Not Apply.

	k.	Demonstrate acceptable personal appearance and personal hygiene.	2.5
	l.	Schedule jobs.	2.0
	m.	Accept routine tasks without becoming disinterested.	1.2
2.		Practice good human relations.	3.3
	a.	See and report the customer's point of view.	3.4
	b.	Empathize with customer.	3.2
3.		Animal science - nutrition.	2.9
	a.	Recommend feeding programs which will eliminate problems of chemical residues in meat, milk, and eggs.	3.1
	b.	Balance rations for different types of livestock and poultry of various ages.	3.1
	c.	Recommend the use of additives and medications in compliance with FDA standards.	3.1
	d.	Formulate feeds so as to balance economically grains grown on the farm.	3.0
	e.	Explain the purpose of feed additives and medications.	3.0
	f.	Determine feed needs in terms of nutrients for growth, production, and reproduction.	2.9
	g.	Read and explain the meaning of the ingredients listed on a feed tag.	2.8
	h.	Recommend feed additives and medication in relation to cost and suitability.	2.8
	i.	Evaluate livestock quality and recommend compatible feeding programs.	2.8
	j.	Determine suitability of feeds for ruminants and nonruminants.	2.8
	k.	Plan alternative feeding programs for different types of livestock using feeds available in the area.	2.7
	l.	Substitute various feed ingredients in balancing rations.	2.7
	m.	Compute feed required for pound of gain for each major livestock group.	2.7
	n.	Classify feeds in terms of nutrients and energy value.	2.7
	o.	Determine the form (pelleted, rolled, ground, etc.) in which feeds should be prepared for livestock and poultry.	2.7
	p.	Determine the quality of hay and silage in terms of feeding value (judgment, lab analysis, etc.).	2.6
	q.	Classify feeds according to mineral content.	2.2

	r.	Compute the conversion of nitrogen from non-protein sources to protein.	2.0
	s.	Trace the passage of feed through digestive processes of various animals.	1.8
	t.	Analyze feeds for fats, nitrogen, nitrogen-free extract, fiber, and ash.	1.7
4.		Animal science - animal care and handling.	2.3
	a.	Assist with planning alternative systems of livestock management.	2.3
	b.	Identify hazards that may cause fire, injury, or poisoning to livestock and poultry.	2.3
5.		Animal science - identification and disease control.	2.0
	a.	Identify symptoms in animals and birds suffering from deficiencies of essential nutritive elements in feeding rations.	2.5
	b.	Identify and plan corrective measures for common livestock diseases and parasites.	2.4
	c.	Recommend treatment for animals and poultry suffering from parasites.	2.2
	d.	Post animals or birds to determine internal parasites.	1.0
6.		Plant science - general knowledge.	2.3
	a.	Compute weight loss incurred in drying grain.	2.9
	b.	Compute cost of drying grain.	2.7
	c.	Recommend accepted crop management practices to improve volume of grain produced.	2.6
	d.	Explain crop adaptation in terms of factors related to soil, climate, and economics.	1.6
	e.	Assist in planning alternative cropping systems.	1.6
7.		Plant science - seed propagation.	2.2
	a.	Analyze seed samples and properly label for sale.	2.4
	b.	Test seed for germination.	1.9
8.		Plant science - fertilizer.	2.5
	a.	Recommend a fertilizer program (timing, placement, etc.).	3.1
	b.	Determine relative amounts of different kinds and types of fertilizers to be applied per acre.	3.0
	c.	Formulate fertilizer to specification.	2.7
	d.	Assist with planning alternative measures of fertilizer applications.	2.7
	e.	Substitute fertilizer ingredients according to economic and agronomic conditions.	2.5
	f.	Formulate herbicide-fertilizer mixtures.	2.3

	g.	Explain the process of manufacturing fertilizers.	1.5
9.		Plant science - hazards of contamination by insects and weeds.	2.9
	a.	Identify various types of grain damage.	3.6
	b.	Identify materials that might contaminate grain because of odors.	3.4
	c.	Identify sources of grain contamination and recommends complete programs of grain sanitation.	3.3
	d.	Treat grain properly and safely for insect control.	3.3
	e.	Recommend weed control programs.	2.8
	f.	Identify weeds and weed seeds commonly found in crops grown locally.	2.4
	g.	Identify and classify insect damage.	2.3
	h.	Identify seed-borne diseases.	2.2
10.		Plant science - agricultural chemicals.	2.7
	a.	Recommend proper time to use chemicals (weeds, crops, insects, etc.).	3.1
	b.	Time chemical applications to avoid residue problems.	3.0
	c.	Interpret chemical labels.	3.0
	d.	Compute amounts of active ingredients of chemicals to be used.	3.0
	e.	Recommend insecticides needed.	2.8
	f.	Name sources of information regarding laws and regulations governing the use of agricultural chemicals.	2.5
	g.	Explain the function of various chemical elements in plant growth.	2.5
	h.	Weigh and measure relatively small quantities of chemicals.	1.9
11.		Agricultural mechanics - special equipment maintenance.	3.0
	a.	Care for and maintain scales.	3.0
12.		Agricultural mechanics - equipment, supplies and materials - recommendations and selection.	2.7
	a.	Select proper equipment to combat fire.	3.5
	b.	Recommend crop varieties that will maximize returns in terms of yield and market acceptance.	2.9
	c.	Recommend the kinds of equipment commonly needed in a grain, feed, seed, and fertilizer facility.	2.2

13.	Agricultural mechanics - equipment operation, specialized equipment.	3.2
a.	Weigh grain as it arrives at the elevator.	3.6
b.	Operate seed-treating and seed-cleaning equipment.	3.2
c.	Operate and adjust equipment commonly used in a grain, feed, seed, and fertilizer facility.	2.9
14.	Agricultural mechanics - equipment operation, testing and analysis devices.	3.4
a.	Use balances, moisture testers, screens, and dockage machines used in grading grain.	3.7
b.	Operate and read devices for detecting heating of grain in storage (hot spots).	3.0
15.	Agricultural mechanics - equipment operation, major equipment.	2.5
a.	Draw a representative sample of grain from a truck or car.	3.7
b.	Calibrate farm implements to apply specific amounts of chemicals.	2.2
c.	Recommend and make machinery adjustments which will result in harvesting quality grain.	1.5
16.	Agricultural mechanics - equipment operation, office equipment.	3.4
a.	Use the telephone for business transactions.	3.4
17.	Agricultural mechanics - agricultural buildings and convenience - construction.	1.7
a.	Diagram efficient facility layouts for modern grain, feed, seed, and fertilizer operations.	1.7
b.	Plan and develop mechanical feeding systems.	1.7
18.	Agricultural mechanics - soil and water management, soils.	2.1
a.	Interpret soil tests.	2.9
b.	Take soil samples for fertilizer analysis.	2.8
c.	Recommend treatment to adjust pH to appropriate levels.	2.6
d.	Explain the importance of soil pH to plant adaptability.	2.6
e.	Identify soil deficiencies from symptoms of growing plants.	2.4
f.	Test soils for pH levels.	2.4
g.	Determine the adaptability of soils to crops to be grown.	1.8

	h.	Identify soils problems that may be due to lack of drainage or lack of water.	1.4
19.		Agricultural business management and marketing - general management.	2.9
	a.	Understand federal and state laws regarding grain, feed, seed, and fertilizer business.	3.4
	b.	Understand the legal responsibilities of a business serving the public.	3.1
	c.	Develop objectives for the business that can be used by management to promote business growth.	3.1
	d.	Explain and use contracts and other legal instruments needed in the business operation.	2.9
	e.	Understand the types of business organization.	2.9
	f.	Understand the advantages and disadvantages of different types of business organization.	2.8
	g.	Understand and be able to apply the basic requirements for starting a business.	2.7
	h.	Explain how environmental factors affect the feed efficiency of livestock enterprises.	2.5
20.		Agricultural business management and marketing - financial management, analysis and assessment.	2.3
	a.	Prepare and interpret a financial statement for the business.	3.1
	b.	Understand the sources of capital for each type of business.	3.0
	c.	Estimate customer wants and needs from past records.	2.8
	d.	Compute costs and returns in determining the use of agricultural chemicals.	2.6
	e.	Develop a hedging program appropriate for a country elevator.	1.9
	f.	Determine from crop reports potential volume of grain produced in elevator trade territory.	1.5
	g.	Analyze costs and returns of such improvement projects as drainage, liming, fertilizers.	1.3
21.		Agricultural business management and marketing - financial management, purchasing and budgeting.	2.5
	a.	Use business goals for preparing a total business budget.	3.0
	b.	Prepare a livestock or poultry feeding budget, estimating feed costs, value of product, and return over feed costs.	2.8
	c.	Prepare advertising budget.	2.4
	d.	Prepare a budget, estimating costs of production and returns per acre or major crops produced in area.	1.7

22.		Agricultural business management and marketing - financial management, credit.	3.4
	a.	Develop a sound credit policy for a grain, feed, seed, and fertilizer business.	3.7
	b.	Evaluate financial statements to determine credit risks of farmers and ranchers.	3.3
	c.	Compute the cost of granting credit.	3.3
	d.	Identify and recommend sources of credit available in the community.	3.2
23.		Agricultural business management and marketing - financial management - marketing.	2.6
	a.	Determine the possible returns from different methods of selling grain.	3.3
	b.	Explain the relationship of cash grain prices to future.	3.1
	c.	Locate sources of market information.	3.0
	d.	Interpret market information in market bulletin, newspapers, and radio.	3.0
	e.	Understand and be able to apply the basic principles of economics to the distribution and marketing of grain, feed, seed, and fertilizer.	2.7
	f.	Identify economic and environmental factors that influence types of livestock and poultry which should be produced in an area.	2.3
	g.	Develop a basis chart for various commodities.	2.3
	h.	Conduct a market survey.	2.3
	i.	Assist farmers and ranchers in determining the most economical ways to market livestock.	2.2
	j.	Determine when livestock are ready for market.	2.0
	k.	Suggest how livestock producers can use the futures market as a market tool.	2.0
24.		Agricultural business management and marketing - financial management - pricing.	3.4
	a.	Price grain based on grade, weight, and quality.	3.7
	b.	Understand the role of prices in the marketplace.	3.4
	c.	Compute margins.	3.4
	d.	Compute markup.	3.4
	e.	Explain the relationship of markup to margin.	3.2
25.		Agricultural business management and marketing - financial management - profits.	3.6
	a.	Understand how each type of business organization divides its profits or losses.	3.9

b.	Understand the importance and the function of business profits.	3.3
26.	Merchandising - salesmanship and selling.	3.0
a.	Quote grain prices to farmers.	3.7
b.	Close a sale.	3.4
c.	Demonstrate the steps of successful farm and ranch calls.	2.8
d.	Demonstrate the steps of successful selling.	2.8
e.	Demonstrate the use of different types of sales techniques. (Telephone, face-to-face, etc.).	2.5
27.	Merchandising - promotion.	2.4
a.	Organize a facility for effective merchandising.	2.8
b.	Organize and conduct sales meetings.	2.6
c.	Plan and conduct fertilizer and agricultural chemical demonstrations.	2.4
d.	Plan and carry out promotion days.	2.3
e.	Recognize potential customers identified from market studies.	2.3
f.	Plan and conduct feeding demonstrations.	2.3
g.	Organize and conduct clinics for customers and staff members.	2.2
h.	Prepare and present demonstrations.	2.2
i.	Prepare and present public speeches.	2.1
28.	Merchandising - displays and advertising.	2.2
a.	Develop a monthly advertising calendar.	2.3
b.	Develop displays.	2.0
29.	Merchandising - stock control and inventory.	3.1
a.	Develop an effective system of inventory control.	3.1
30.	Merchandising - quality control.	2.7
a.	Grade grain according to USDA Grain Standards Act.	3.5
b.	Blend various qualities of grain to meet grade.	3.4
c.	Use aeration, drying, and turning techniques to preserve grain quality.	3.2
d.	Conduct various types of tests to determine protein in grain.	2.6
e.	Prepare seed to meet state certification laws.	2.1
f.	Conduct field inspection for producing certified seed.	1.6
31.	Merchandising, receiving, packaging, and labeling.	2.8
a.	Label and market seed in accordance with state laws.	2.8

	b. Prepare labels for treated seed to meet government regulations.	2.7
32.	Merchandising - shipping.	3.4
	a. Load cars or trucks with grain for shipment.	3.4
33.	Clerical - writing letters and reports.	2.1
	a. Prepare clear, concise written reports.	2.7
	b. Prepare letters to customers.	2.7
	c. Write advertising.	1.9
	d. Prepare news releases.	1.7
	e. Prepare radio and TV scripts.	1.7
34.	Clerical - business forms.	3.3
	a. Prepare warehouse receipts.	3.6
	b. Prepare scale tickets.	3.5
	c. Write up sales tickets.	3.5
	d. Prepare Bills of Lading.	3.3
	e. Prepare purchase orders.	2.8

GRAIN, FERTILIZER, FEED AND SEED SALES BUSINESS OCCUPATIONS

COUNTERMAN

Other Title: Salesman.

Job Description: Must have a wide knowledge of farming and ranching and a good understanding of local livestock and crop production practices and problems. Thoroughly familiar with all products which the business stocks for sale. Knows most customers. Fills customer orders and completes record of sales. Keeps inventory of stock on hand and reorders items in short supply. Is usually employed by privately owned firms, businesses, and organizations.

HELPER

Other Title: Worker.

Job Description: A general knowledge of farming and ranching is needed by this employee. He follows instructions of supervisors in filling customers orders, stocks supplies, and assists other employees of the business when his services are needed. He helps to keep buildings clean and orderly, helps load trucks, drives trucks and other equipment used in the business. Is usually employed by privately owned firms, businesses, and organizations.

SALES AND SERVICE REPRESENTATIVE

Other Title: Salesman.

Job Description: A thorough knowledge of farming and ranching is a must for this employee. He should quickly recognize the specific needs of prospective customers and provide them with alternative solutions to their needs which the business he represents can provide. He must have a knowledge of the customer's ability to pay for purchases and the amount of credit which may be offered to various customers. He must have a thorough knowledge of all materials, supplies, and items his company offers for sale, the quantity on hand, their location, and price. He must be considerate with customers and promote good customer relations with the business he represents which is usually privately owned.

BOOKKEEPER

Other Title: Secretary.

Job Description: Must have a general knowledge of farming and ranching. Must have good knowledge of keeping financial accounts and records including purchases, sales, charge accounts, monthly billings, and federal and state tax reporting. Is responsible for inventory control. Must have skill in typing. Is usually employed by privately owned firms, businesses, and organizations.

DRIVER

Other Titles: Truck Driver, Deliveryman.

Job Description: Should have a good general knowledge of farming and ranching. Must be familiar with location of customer's farms and ranches including location of nearby towns and centers of transportation including railroads. Must know how to properly load and unload trucks quickly and safely. Should possess a thorough knowledge of the proper operation and maintenance of trucks, and understand the mechanics of gasoline engines. Must be a skilled and safe driver of trucks and autos; be tactful with customers and promote good customer relations. Must have a good knowledge of all materials and supplies his business sells. Is usually employed by privately owned firms, businesses, and organizations.

Competencies Identified and Validated*

	Weighted Means by Occupation**				
	N 36	N 36	N 41	N 41	N 34
Competencies	Counterman	Helper	Sales & Service Representative	Bookkeeper	Driver
1. Possess desirable personal qualities and qualifications.	3.5	3.3	3.0	3.3	3.1
a. Demonstrate the ability to get along with others.	3.6	3.9	4.0	3.5	3.2
b. Demonstrate the ability to work on his own.	4.0	3.3	2.5	3.4	3.3

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* Responses from persons employed in these occupations or their work supervisors in 16 states. Survey conducted by Department of Agricultural Education, North Dakota State University, Fargo, North Dakota 58102.

** 4.0 = Essential; 3.0 = Important; 2.0 = Of Some Importance; 1.0 = Not Important; 0 = Does Not Apply.

Competencies	Counterman	Helper	Sales & Service Representative	Bookkeeper	Driver
c. Demonstrate a willingness to work.	3.4	3.3	3.7	3.3	3.3
d. Demonstrate the ability to project a desirable image for the firm.	3.5	3.0	3.8	3.3	3.3
e. Demonstrate personal integrity as an employee of the firm.	3.5	3.3	3.8	3.6	3.4
f. Budget time.	3.0	2.6	3.5	3.4	2.9
g. Maintain a satisfactory attendance record.	4.0	3.2	3.4	3.4	3.2
h. Demonstrate desirable job attitude about the organization when working with fellow employees, potential customers and customers.	3.6	3.2	3.6	3.3	3.3
i. Demonstrate a willingness to learn or take supervision.	3.2	3.2	3.4	3.4	3.1
j. Demonstrate the ability to follow directions of supervisor.	2.4	3.4	3.3	3.4	3.2
k. Demonstrate acceptable personal appearance and personal hygiene.	3.1	2.7	3.5	3.3	3.1
l. Schedule jobs.	2.7	2.1	3.3	2.9	2.5
m. Accept routine tasks without becoming disinterested.	2.9	3.0	3.0	2.2	2.9
2. Practice good human relations.	2.9	2.4	2.9	2.6	2.8
a. See and report the customer's point of view.	3.0	2.5	3.4	2.6	2.9
b. Empathize with customer.	2.8	2.3	2.4	2.5	2.6
3. Animal science - nutrition.	1.8	0.6	2.4	0.3	0.5
a. Recommend feeding programs which will eliminate problems of chemical residues in meat, milk and eggs.	1.9	.8	2.7	.3	.6
b. Balance rations for different types of livestock and poultry of various ages.	1.9	.7	2.6	.3	.5
c. Recommend the use of additives and medications in compliance with FDA standards.	2.1	.8	2.7	.3	.5
d. Formulate feeds so as to balance economically grains grown on the farm.	1.9	.7	2.7	.3	.5

Competencies	Counterman	Helper	Sales & Service Representative	Bookkeeper	Driver
e. Explain the purpose of feed additives and medications.	2.2	.8	2.6	.3	.5
f. Determine feed needs in terms of nutrients for growth, production and reproduction.	1.9	.7	2.5	.3	.6
g. Read and explain the meaning of the ingredients listed on a feed tag.	2.1	.9	2.6	.5	.7
h. Recommend feed additives and medication in relation to cost and suitability.	2.1	.6	2.6	.3	.5
i. Evaluate livestock quality and recommend compatible feeding programs.	2.1	.5	2.4	.2	.5
j. Determine suitability of feeds for ruminants, nonruminants.	2.2	.6	2.5	.2	.5
k. Plan alternative feeding programs for different types of livestock using feeds available in the area.	1.9	.5	2.6	.3	.4
l. Substitute various feed ingredients in balancing rations.	1.8	.5	2.4	.3	.5
m. Compute feed required for pound of gain for each major livestock group.	1.8	.5	2.4	.2	.5
n. Classify feeds in terms of nutrients and energy value.	1.7	.5	2.4	.2	.5
o. Determine the form (pelleted, rolled, ground, etc.) in which feeds should be prepared for livestock and poultry.	1.7	.6	2.4	.2	.5
p. Determine the quality of hay and silage in terms of feeding value (judgment, lab analysis, etc.).	1.6	.4	2.5	.2	.5
q. Classify feeds according to mineral content.	1.5	.4	2.2	.3	.5
r. Compute the conversion of nitrogen from non-protein to protein.	1.4	.4	2.3	.4	.5
s. Trace the passage of feed through digestive processes of various animals.	1.3	.4	2.0	.2	.4

Competencies	Counterman	Helper	Sales & Service Representative	Bookkeeper	Driver
t. Analyze feeds for fats, nitrogen-free extract, fiber and ash.	.8	.4	1.6	.3	.4
4. Animal science - animal care and handling.	1.7	.8	2.5	.5	1.0
a. Assist with planning alternative systems of livestock management.	1.6	.5	2.5	.4	.7
b. Identify hazards that may cause fire, injury or poisoning to livestock and poultry.	1.7	1.0	2.4	.5	1.3
5. Animal science - identification and disease control.	1.5	.5	2.3	.2	.5
a. Identify symptoms in animals and birds suffering from deficiencies of essential nutritive elements in feeding rations.	1.4	.7	2.4	.2	.7
b. Identify and plans corrective measures for common livestock diseases and parasites.	1.5	.5	2.4	.2	.5
c. Recommend treatment for animals and poultry suffering from parasites.	1.9	.5	2.4	.2	.5
d. Post animals or birds to determine internal parasites.	1.1	.4	1.8	.2	.3
6. Plant science - general knowledge.	2.2	.9	2.6	1.3	.5
a. Compute weight loss incurred in drying grain.	2.3	1.1	2.3	2.2	.5
b. Compute cost of drying grain.	2.2	1.0	2.3	2.2	.4
c. Recommend accepted crop management practices to improve volume of grain produced.	2.5	.9	3.0	.9	.5
d. Explain crop adaptation in terms of factors related to soil, climate and economics.	2.2	.8	2.8	.6	.5
e. Assist in planning alternative cropping systems.	1.9	.7	2.8	.6	.4
7. Plant science - seed propagation.	1.5	1.1	1.5	.5	.5
a. Analyze seed samples and properly label for sale.	1.5	1.0	1.6	.6	.5
b. Test seed for germination.	1.4	1.2	1.3	.4	.4

Competencies	Counterman	Helper	Sales & Service Representative	Bookkeeper	Driver
8. Plant science - fertilizer.	2.3	.9	2.7	.6	.5
a. Recommend a fertilizer program (timing, placement, etc.).	2.8	.9	3.0	.5	.6
b. Determine relative amounts of different kinds and types of fertilizers to be applied per acre.	2.9	.9	3.1	.6	.6
c. Formulate fertilizer to specification.	2.2	.9	2.4	.7	.5
d. Assist with planning alternative measures of fertilizer applications.	2.3	.9	2.8	.6	.5
e. Substitute fertilizer ingredients according to economic and agronomic conditions.	1.9	.8	2.5	.6	.4
f. Formulate herbicide-fertilizer mixtures.	2.1	.9	2.8	.5	.3
g. Explain the process of manufacturing fertilizers.	1.8	.8	2.2	.5	.6
9. Plant science - hazards (insects, weeds, damage and contamination).	2.3	1.6	2.7	.5	1.0
a. Identify various types of grain damage.	2.6	2.4	2.6	.6	1.1
b. Identify materials that might contaminate grain because of odors.	2.5	2.0	2.5	.6	1.6
c. Identify sources of grain contamination and recommend complete programs of grain sanitation.	2.6	1.6	2.7	.6	1.3
d. Treat grain properly and safely for insect control.	2.1	2.2	2.1	.5	1.2
e. Recommend weed control programs.	2.6	.8	3.1	.6	.6
f. Identify weeds and weed seeds commonly found in crops grown locally.	2.3	1.3	2.9	.4	.7
g. Identify and classify insect damage.	2.1	1.3	2.9	.4	.8
h. Identify seed-borne diseases.	1.9	1.0	2.8	.4	.3

Competencies	Counterman	Helper	Sales & Service Representative	Bookkeeper	Driver
10. Plant science - agricultural chemicals.	2.4	1.1	2.9	.6	.6
a. Recommend proper time to use chemicals (weeds, crops, insects, etc.).	2.9	1.1	3.1	.7	.7
b. Time chemical applications to avoid residue problems.	2.5	1.1	2.9	.6	.6
c. Interpret chemical labels.	2.7	1.3	3.1	.8	.8
d. Compute amounts of active ingredients of chemicals to be used.	2.6	1.2	3.1	.6	.6
e. Recommend insecticides needed.	2.7	1.2	3.1	.6	.5
f. Name sources of information regarding laws and regulations governing the use of agricultural chemicals.	2.4	1.2	2.9	.8	.7
g. Explain the function of various chemical elements in plant growth.	2.1	.9	2.6	.5	.5
h. Weigh and measure relatively small quantities of chemicals.	1.6	1.1	2.1	.5	.7
11. Agricultural mechanics - special equipment maintenance.	2.1	1.7	1.6	.7	1.2
a. Care for and maintain scales.	2.1	1.7	1.6	.7	1.2
12. Agricultural mechanics - equipment, supplies and materials recommendations and selections.	2.1	1.4	2.0	.8	1.1
a. Select proper equipment to combat fire.	1.9	1.9	1.8	1.0	2.1
b. Recommend crop varieties that will maximize returns in terms of yield and market acceptance.	2.5	1.1	3.0	.6	.6
c. Recommend the kinds of equipment commonly needed in a grain, feed, seed and fertilizer facility.	1.8	1.2	2.1	.4	.7
13. Agricultural mechanics - equipment operation - various specialized equipment.	2.1	2.6	1.6	1.0	1.7
a. Weigh grain as it arrives at the elevator.	2.8	2.3	1.9	2.1	2.2

Competencies	Counterman	Helper	Sales & Service Representative	Bookkeeper	Driver
b. Operate seed-treating and seed-cleaning equipment.	1.6	2.5	1.2	.4	1.2
c. Operate and adjust equipment commonly used in a grain, feed, seed and fertilizer facility.	2.0	2.9	1.6	.4	1.6
14. Agricultural mechanics - equipment operation - testing and analysis devices.	2.9	2.5	1.8	1.7	1.1
a. Use balances, moisture testers, screens and dockage machines used in grading grain.	3.1	2.5	2.0	2.1	1.1
b. Operate and read devices for detecting heating of grain in storage (hot spots).	2.6	2.5	1.6	1.3	1.0
15. Agricultural mechanics - equipment operation - major equipment.	2.0	2.0	2.0	.8	1.5
a. Draw a representative sample of grain from a truck or car.	3.1	3.0	1.9	1.6	1.9
b. Calibrate farm implements to apply specific amounts of chemicals.	1.5	1.7	2.2	.4	1.4
c. Recommend and make machinery adjustments which will result in harvesting quality grain.	1.4	1.2	1.9	.3	1.1
16. Agricultural mechanics - equipment operation - office equipment.	3.2	1.6	3.4	3.6	1.8
a. Use the telephone for business transactions.	3.2	1.6	3.4	3.6	1.8
17. Agricultural mechanics - agricultural buildings and convenience - construction.	1.0	.6	1.8	.4	.5
a. Diagram efficient facility layouts for modern grain, feed, seed and fertilizer operations.	.9	.6	1.6	.5	.4
b. Plan and develop mechanical feeding systems.	1.0	.5	1.9	.3	.5

Competencies	Counterman	Helper	Sales & Service Representative	Bookkeeper	Driver
18. Agricultural mechanics - soil and water management - soils.	1.9	1.1	2.4	.5	.5
a. Interpret soil tests.	2.2	1.1	2.8	.7	.5
b. Take soil samples for fertilizer analysis.	1.6	1.7	2.5	.4	.9
c. Recommend treatment to adjust pH to appropriate levels.	2.1	1.2	2.6	.6	.4
d. Explain the importance of soil pH to plant adaptability.	2.3	1.1	2.6	.5	.5
e. Identify soil deficiencies from symptoms of growing plants.	1.9	1.0	2.6	.5	.5
f. Test soils for pH levels.	1.5	.9	2.1	.4	.5
g. Determine the adaptability of soils to crops to be grown.	1.8	1.0	1.7	.4	.4
h. Identify soils problems that may be due to lack of drainage or lack of water.	1.6	1.0	2.5	.4	.5
19. Agricultural business management and marketing - general management.	2.1	1.3	2.5	2.0	.9
a. Understand federal and state laws regarding grain, feed, seed and fertilizer business.	2.7	1.9	3.0	2.5	1.5
b. Understand the legal responsibilities of a business serving the public.	2.7	2.0	3.0	2.7	1.6
c. Develop objectives for the business that can be used by management to promote business growth.	2.0	1.4	2.4	2.0	.8
d. Explain and use contracts and other legal instruments needed in the business operation.	2.2	1.2	2.6	2.5	.6
e. Understand the types of business organization.	2.0	1.1	2.5	2.2	.7
f. Understand the advantages and disadvantages of different types of business organization.	1.9	.9	2.1	2.2	.7
g. Understand and is able to apply the basic requirements for starting a business.	1.5	.8	2.1	2.1	.5
h. Explain how environmental factors affect the feed efficiency of livestock enterprises.	2.0	.9	2.6	.7	.7

Competencies	Counterman	Helper	Sales & Service Representative	Bookkeeper	Driver
20. Agricultural business management and marketing - financial management - analysis and assessment.	1.6	.9	2.2	1.9	.5
a. Prepare and interpret a financial statement for the business.	1.1	1.3	1.7	2.8	.4
b. Understand the sources of capital for each type of business.	1.1	.6	1.6	2.4	.4
c. Estimate customer wants and needs from past records.	2.4	1.2	2.7	2.4	.8
d. Compute costs and returns in determining the use of agricultural chemicals.	2.2	.8	2.6	1.5	.4
e. Develop a hedging program appropriate for a country elevator.	1.1	.6	1.2	1.3	.3
f. Determine from crop reports potential volume of grain produced in elevator trade territory.	1.7	.9	2.1	2.0	.5
g. Analyze costs and returns of such improvement projects as drainage, liming, fertilizers.	1.5	.6	3.2	.8	.4
21. Agricultural business management and marketing - financial management - purchasing and budgeting.	1.4	.6	2.0	1.3	.3
a. Use business goals for preparing a total business budget.	1.3	.7	1.7	2.0	.3
b. Prepares a livestock or poultry feeding budget, estimating feed costs, value of product and return over feed costs.	1.5	.5	2.2	.8	.3
c. Prepare advertising budget.	1.3	.5	1.8	1.6	.3
d. Prepare a budget, estimating costs of production and returns per acre or major crops produced in area.	1.6	.6	2.4	.8	.3
22. Agricultural business management and marketing - financial management - credit.	1.6	.7	2.3	2.1	.4
a. Develop a sound credit policy for a grain, feed, seed and fertilizer business.	1.6	.9	2.0	1.8	.5

Competencies	Counterman	Helper	Sales & Service Representative	Bookkeeper	Driver
b. Evaluate financial statements to determine credit risks of farmers and ranchers.	1.6	.8	2.4	2.3	.4
c. Compute the cost of granting credit.	1.5	.7	2.2	2.2	.4
d. Identify and recommend sources of credit available in the community.	1.7	.5	2.4	2.0	.4
23. Agricultural business management and marketing - financial management - marketing.	1.6	.8	2.1	1.2	.4
a. Determine the possible returns from different methods of selling grain.	1.7	.8	2.1	1.6	.4
b. Explain the relationship of cash grain prices to futures.	1.6	.7	2.1	1.7	.3
c. Locate sources of market information.	1.8	.8	2.1	1.6	.4
d. Interpret market information in market bulletin, newspapers and radio.	1.9	.9	2.3	1.5	.6
e. Understand and is able to apply the basic principles of economics to the distribution and marketing of grain, feed, fertilizer and seed.	1.8	.8	2.4	1.7	.5
f. Identify economic and environmental factors that influence types of livestock and poultry which should be produced in an area.	1.5	.6	2.3	.8	.4
g. Develop a basis chart for various commodities.	1.3	.6	1.4	1.5	.3
h. Conduct a market survey.	1.7	.6	2.2	1.3	.4
i. Assist farmers and ranchers in determining the most economical ways to market livestock.	1.5	.5	2.3	.7	.5
j. Determine when livestock are ready for market.	1.2	.6	2.0	.4	.6
k. Suggest how livestock producers can use the futures market as a market tool.	1.5	.5	2.1	2.4	.6

Competencies	Counterman	Helper	Sales & Service Representative	Bookkeeper	Driver
24. Agricultural business management and marketing - financial management pricing.	2.1	1.2	2.1	2.4	.6
a. Price grain based on grade, weight and quality.	2.1	1.4	2.1	2.4	.7
b. Understand the role of prices in the marketplace.	2.5	1.5	2.6	2.1	.9
c. Compute margins.	2.0	1.0	2.0	2.5	.5
d. Compute markup.	2.1	1.2	2.0	2.5	.5
e. Explain the relationship of markup to margin.	1.7	.9	2.0	2.6	.5
25. Agricultural business management and marketing - financial management - profits.	2.1	1.1	2.6	2.7	1.0
a. Understand how each type of business organization divides its profits or losses.	1.8	.9	2.1	2.6	.8
b. Understand the importance and the function of business profits.	2.4	1.2	3.1	2.7	1.2
26. Merchandising - salesmanship and selling.	3.8	1.4	3.2	1.9	.9
a. Quote grain prices to farmers.	3.3	1.6	3.0	2.7	1.1
b. Close a sale.	3.3	1.4	3.4	2.3	.9
c. Demonstrate the steps of successful selling.	2.7	1.3	3.2	1.8	.8
d. Demonstrate the techniques for successful farm and ranch calls.	2.3	1.4	3.2	1.0	1.0
e. Demonstrate the use of different types of sales techniques (telephone, face-to-face, etc.).	2.9	1.4	3.3	1.6	.9
27. Merchandising - promotion.	2.0	.7	2.7	.7	.5
a. Organize a facility for effective merchandising.	2.3	1.0	2.3	1.1	.5
b. Organize and conduct sales meetings.	1.8	.8	2.9	.7	.5
c. Plan and conduct fertilizer and agricultural chemical demonstrations.	2.2	.8	2.8	.6	.5

Competencies	Counterman	Helper	Sales & Service Representative	Bookkeeper	Driver
d. Plan and carry out promotion days.	2.3	.8	2.8	.8	.5
e. Recognize potential customers identified from market studies.	2.3	.9	2.9	1.1	.8
f. Plan and conduct feeding demonstrations.	1.5	.6	2.7	.5	.5
g. Organize and conduct clinics for customers and staff members.	1.7	.5	2.7	.6	.4
h. Prepare and present demonstrations.	1.8	.7	2.7	.5	.4
i. Prepare and present public speeches.	1.7	.6	2.6	.7	.4
28. Merchandising - displays and advertising.	2.2	.8	2.1	1.0	.4
a. Develop a monthly advertising calendar.	1.9	.6	2.0	1.0	.4
b. Develop displays.	2.4	1.0	2.2	1.0	.4
29. Merchandising - stock control and inventory.	2.4	1.4	1.7	2.3	.8
a. Develop an effective system of inventory control.	2.4	1.4	1.7	2.3	.8
30. Merchandising - quality control.	1.7	1.8	1.6	.9	.8
a. Grade grain according to USDA Grain Standards Act.	2.9	2.1	2.0	1.8	1.0
b. Blend various qualities of grain to meet grade.	2.0	2.5	1.6	.9	1.2
c. Use aeration, drying and turning techniques to preserve grain quality.	1.9	2.6	1.5	.8	1.0
d. Conduct various types of tests to determine protein in grain.	1.1	1.3	1.3	.4	.6
e. Prepare seed to meet state certification laws.	1.2	1.4	1.3	.6	.6
f. Conduct field inspection for producing certified seed.	.9	.9	1.7	.6	.5
31. Merchandising - receiving, packaging and labeling.	1.8	1.3	1.7	1.0	.8
a. Label and market seed in accordance with state laws.	1.7	1.4	1.8	.8	.8

Competencies	Counterman	Helper	Sales & Service Representative	Bookkeeper	Driver
b. Prepare labels for treated seed to meet government regulations.	1.8	1.1	1.6	1.1	.7
32. Merchandising - shipping.	1.3	3.3	1.1	.5	2.7
a. Load cars or trucks with grain for shipment.	1.3	3.3	1.1	.5	2.7
33. Clerical - writing letters and reports.	1.7	.9	2.2	2.3	.7
a. Prepare clear, concise written reports.	2.2	1.3	3.0	3.4	1.2
b. Prepare letters to customers.	2.1	.9	2.6	3.2	.4
c. Write advertising.	1.6	.8	2.1	2.1	.6
d. Prepare news releases.	1.4	.7	1.6	1.5	.6
e. Prepare radio and TV scripts.	1.3	.7	1.8	1.4	.6
34. Clerical - business forms.	2.8	1.6	1.5	3.4	1.0
a. Prepare warehouse receipts.	2.3	1.2	1.3	3.5	.5
b. Prepare scale tickets.	3.0	2.1	1.7	3.6	1.3
c. Write up sales tickets.	3.3	2.0	2.2	3.3	1.3
d. Prepare Bills of Lading.	2.6	1.6	1.3	3.5	1.0
e. Prepare purchase orders.	3.0	1.3	1.7	3.3	.7

PET SHOP WORKER

Other Titles: Pet Shop Attendant, Aquarist, Aquarium Tankman, Tank Attendant, Tankman.

Job Description:

Cares for birds and animals and fish in a pet shop; feeds and waters birds and animals by replenishing troughs; cleans pens and cages, using scraper and shovel; observes birds and animals for signs of sickness or injury; transfers birds and animals from one cage to another, or removes them according to customer selection, manually or by use of a net. The Pet Shop Worker attends to fish and other marine life; prepares food or special diets for and feeds fish; cleans bottom and clears away algae on windows of tanks, using scrubbing brushes; attends to marine plants and decorations used in live tank displays; observes and reports diseased, injured, or dead fish; gives medical treatments to and provides other necessities for fish as directed; may record number and kinds of fish for inventory purposes.

Competencies Identified and Validated

N = 25*

		Competencies	Weighted Mean**
1.		Perform general office work.	2.7
	a.	Greet clients and customers.	3.7
	b.	Use telephone.	3.7
	c.	Wear appropriate dress for office work.	3.1
	d.	Write notes, memos, and letters.	2.9
	e.	Manage bad checks.	2.6
	f.	Determine purpose of visits.	2.4
	g.	File office forms and records.	2.2
	h.	Schedule appointments.	2.1
	i.	Operate office equipment.	2.0
2.		Record information.	2.9
	a.	Record feeding information.	3.5
	b.	Record medication information.	3.4
	c.	Maintain animal loss record.	3.1
	d.	Maintain animal transfer record.	3.0
	e.	Record vaccination information.	3.0

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* Responses from 25 Pet Shop Workers in 20 states. Survey conducted by Department of Agricultural Education, The Ohio State University, Columbus, Ohio 43210.

** 4.0 = Essential; 3.0 = Important; 2.0 = Of Some Importance; 1.0 = Not Important; 0 = Does Not Apply.

f.	Record patient information.	3.0
g.	Balance daily cash statements.	3.0
h.	Record client information.	3.0
i.	Record personal accidents.	2.9
j.	Deposit daily receipts.	2.8
k.	Record weight information.	2.8
l.	Record account data.	2.8
m.	Record surgery information.	2.7
n.	Prepare monthly bank statement.	2.7
o.	Maintain account records and payments.	2.7
p.	Receive payment.	2.6
q.	Maintain personnel work hours chart.	2.6
r.	Write checks.	2.1
3.	Handle and care for animals.	3.2
a.	Implement and maintain sanitary procedures.	3.7
b.	Maintain sanitary environment for young.	3.6
c.	Separate noncompatible animals.	3.6
d.	Observe animals regularly for problems.	3.6
e.	Estimate weight of animals.	3.5
f.	Evaluate condition of animals.	3.5
g.	Control animals when handling.	3.4
h.	Place animals in pens.	3.3
i.	Provide proper environment for bred animals.	3.2
j.	Exercise animals.	3.1
k.	Identify husbandry practices of rodents.	3.1
l.	Isolate pregnant animals.	3.1
m.	Tag animals.	3.1
n.	Identify husbandry practices or parakeet varieties.	3.0
o.	Identify husbandry practices of lovebirds and cockateels.	3.0
p.	Identify husbandry practices of parrots and macaws.	2.9
q.	Check if animals are pregnant.	2.8
r.	Identify breeding methods.	2.7
s.	Play with animals.	2.6
t.	Identify animal heat signs.	2.6
4.	Feed animals.	3.0
a.	Provide water for animals.	3.8
b.	Place feed in containers.	3.2
c.	Prepare feed.	3.2
d.	Add medication to feeds.	3.2
e.	Feed pre/post shipment diet.	3.1
f.	Determine amount of feed required by animals .	3.0
g.	Determine nutritional requirement of animals .	2.9
h.	Determine how often animals should be fed.	2.9
i.	Determine when to feed.	2.9
j.	Determine common nutritional principles.	2.9
k.	Determine which feeds may be fed animals.	2.9
l.	Identify common storage procedures.	2.8
m.	Identify information on feed labels.	2.6

	n.	Identify components of feed.	2.5
5.		Groom animals.	2.0
	a.	Dry washed animals with towel and dryer.	2.4
	b.	Comb animals.	2.2
	c.	Identify water and shampoo differences.	2.2
	d.	Clip nails.	2.0
	e.	Pluck hair.	1.7
	f.	Perfume animals.	1.5
6.		Perform examining room work.	2.0
	a.	Use appropriate disinfectants.	2.6
	b.	Assist in treating disease.	2.0
	c.	Assist manager in determining control procedures.	2.0
	d.	Place and restrain animal on examining table.	1.8
	e.	Prepare examination room area.	1.8
	f.	Use proper taping techniques.	1.8
7.		Perform laboratory tests.	2.3
	a.	Measure solids and liquids.	2.3
	b.	Identify parasites and eggs.	2.2
8.		Dispense medicine and supplies.	2.7
	a.	Destroy empty containers and drug administration devices.	2.8
	b.	Store products in appropriate area.	2.8
	c.	Interpret product labels.	2.6
	d.	Label drug containers.	2.6
	e.	Transfer products to proper containers.	2.6
9.		Perform emergency first aid.	3.0
	a.	Isolate abnormal animals.	3.1
	b.	Maintain body temperature.	3.0
	c.	Cleanse wounds.	2.9
	d.	Apply antiseptic.	2.8
10.		Inventory products.	3.0
	a.	Remove contaminated items.	3.4
	b.	Order supplies.	3.0
	c.	Take physical inventory.	3.0
	d.	Remove expired products.	3.0
	e.	Use stocking forms.	2.7
11.		Sell and market products.	3.3
	a.	Complete sales slip.	3.6
	b.	Initiate sales.	3.6
	c.	Demonstrate items for sale.	3.5
	d.	Handle customer inquiries and complaints.	3.5
	e.	Make change.	3.4
	f.	Operate cash register.	3.4

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	g.	Determine whether product requested is on hand.	3.4
	h.	Price products.	3.2
	i.	Prepare newspaper, newsletter, and other written public advertisements.	2.3
12.		Follow legal regulations.	3.0
	a.	Demonstrate knowledge of animal health care regulations.	3.2
	b.	Demonstrate knowledge of state laws.	3.0
	c.	Understand the legal rights and privileges of personnel.	3.0
	d.	Be aware of federal, state, and local lobby organizations.	3.0
	e.	Determine what duties may be performed.	2.9
	f.	Demonstrate knowledge of laws regulating pet supply companies.	2.9
	g.	Be aware of agencies available for legal help.	2.9
	h.	Determine which materials may be sold without prescriptions.	2.8
13.		Maintain facilities.	3.7
	a.	Clean feeders.	3.7
	b.	Clean waterers.	3.7
	c.	Clean and disinfect pens.	3.7
	d.	Dispose of residue and trash.	3.7
14.		Follow safety precautions.	3.6
	a.	Identify potential safety hazards.	3.7
	b.	Store chemicals safely.	3.7
	c.	Follow safe work habits.	3.6
	d.	Use fire extinguishers.	3.6
	e.	Administer minor first aid for cuts, bruises, burns, etc.	3.5
15.		Order tropical fish.	2.8
	a.	Identify disease and bacteria found in fresh water aquariums.	3.0
	b.	Determine number of tanks to be prepared for new fish orders.	2.8
	c.	Inventory and order fish.	2.6
	d.	Determine retail amounts of tropical fish ordered.	2.6
16.		Merchandise fish.	3.0
	a.	Identify fish.	3.2
	b.	Display speciality fish properly.	3.1
	c.	Place fish in proper tanks.	3.0
	d.	Select and use appropriate gravel for types of fish to be displayed.	3.0
	e.	Properly set up and display fish.	3.0

	f. Use proper lighting for display fish.	2.9
	g. Select proper background and ornaments for display fish.	2.9
	h. Display top and bottom swimming fish appropriately.	2.8
17.	Receive and handle tropical fish.	3.3
	a. Acclimate newly received fish.	3.3
	b. Unpack delicate fish.	3.3

PARTSMAN IN FARM MACHINERY DEALERSHIP

Other Titles: Partsman, Farm Machinery Partsman.

Job Description:

A Partsman in a farm machinery dealership is responsible for the selling of spare and replacement parts to customers and dispensing replacement parts for service jobs. A Partsman is responsible for receiving, storing, and maintaining an inventory of machinery parts. The partsman must be able to identify parts, determine parts numbers, and determine prices. Continual contact with customers through sales requires that a Partsman be able to work harmoniously with customers to maximize customer satisfaction.

Competencies Identified and Validated

N = 30*

Competencies		Weighted Mean**
1.	Learn parts sales techniques.	3.3
a.	Determine price of part from price lists.	3.8
b.	Sell parts to customers.	3.8
c.	Make out sales receipts.	3.8
d.	Use parts catalog or microfilm to determine part name and stock numbers.	3.8
e.	Read and interpret diagrams in parts manuals.	3.7
f.	Receive telephone orders for parts.	3.6
g.	Determine the make, model, year, and type of equipment for which a part is needed.	3.6
h.	Record parts identification and price on service tickets.	3.6
i.	Make out credit slips and re-stock returned parts.	3.5
j.	Locate and retrieve parts from storage area.	3.5
k.	Advise customers when out-of-stock parts will be available.	3.5
l.	Determine that any new parts returned for credit are complete and undamaged.	3.4
m.	Advise customers of parts needed.	3.4
n.	Advise customers of related parts, accessories, and consumable items that may be needed.	3.4
o.	Sell related parts, accessories, and consumable items to customers.	3.4

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* Responses from 30 Farm Machinery Dealers in 9 states. Survey conducted by Agricultural and Occupational Education Division of the Education Department, Cornell University, Ithaca, New York 14853.

** 4.0 = Essential; 3.0 = Important; 2.0 = Of Some Importance; 1.0 = Not Important; 0 = Does Not Apply.

p.	Interpret serial numbers to identify model of equipment for which a part is needed.	3.3
q.	Refer customers to salesperson for major equipment purchases.	3.3
r.	Identify parts needed by service department from verbal description.	3.3
s.	Dispense parts to service department.	3.3
t.	Guide customers to location of serial and parts numbers on equipment.	3.2
u.	Explain parts warranty and guarantee provisions to customers.	3.2
v.	Encourage multiple purchases of consumable items.	3.1
w.	Explain dealer policy to customers.	3.1
x.	Use adding machine to total prices.	3.1
y.	Provide customer refunds or exchanges under manufacturer's warrantees or dealership guarantees.	3.0
z.	Check credit references of customers.	2.8
aa.	Operate cash register to record sales.	2.8
bb.	Refer customers to other dealers for parts not in current inventory or discontinued.	2.7
cc.	Refer customers to shop for evaluation of warranty coverage on parts returned.	2.6
dd.	Advise customers on procedure for installation of parts.	2.4
2.	Learn warehousing and merchandising systems.	2.8
a.	Store parts in stockroom according to dealership inventory system.	3.7
b.	Arrange stockroom for efficient use.	3.4
c.	Display new and fast moving items.	3.2
d.	Stock self-service shelves with consumable items.	3.0
e.	Prepare and maintain displays of tools and accessories.	2.6
f.	Put price tags on displayed items.	2.5
g.	Assemble small equipment such as chainsaws, mulchers, etc.	1.4
3.	Use processing and shipping skills.	3.3
a.	Unpack and check items received against invoices.	3.8
b.	Resolve any shortages, damaged, or wrong items in shipments received.	3.8
c.	Make out invoices for items to be shipped.	3.5
d.	Mail or ship parts to fill customer orders.	3.4
e.	Ship warranty claim parts to manufacturer for credit.	3.3
f.	Package parts for shipping.	3.3

g.	Ship defective parts to manufacturer for credit.	3.3
h.	Ship parts via least cost carrier.	3.1
i.	Ship exchange parts to manufacturer for rebuilding.	3.0
j.	Arrange for insurance on shipments according to dealership policies.	2.9
k.	Compute postage and freight for parts shipment.	2.8
4.	Control inventory.	2.9
a.	Use rush orders for breakdown parts.	3.8
b.	Order out-of-stock parts for customers and repair jobs in shop.	3.7
c.	Maintain current inventory of parts on control cards or computer printout.	3.5
d.	Identify fast moving parts for inventory increases.	3.5
e.	Order parts based on actual and anticipated sales.	3.3
f.	Order parts to take advantage of volume discounts.	3.2
g.	Identify new parts in excess of inventory.	3.1
h.	Conduct annual parts inventory for tax purposes.	3.1
i.	Maintain current tool and hardware inventory.	2.8
j.	Survey wholesalers for best prices and service.	2.8
k.	Dispose of obsolete parts.	2.8
l.	Use computer to locate parts in other dealerships.	2.5
m.	Calculate and analyze inventory turnover.	2.5
n.	Make out computer cards for parts orders.	2.3
o.	Purchase tools and hardware from salesperson.	1.7
p.	Cooperate in volume buying with other dealers.	1.5
5.	Keep records.	2.4
a.	Maintain complete and current parts catalogs and price lists.	3.7
b.	Adjust parts catalogs to reflect manufacturer's service bulletins.	3.4
c.	File sales slips as a record of sales.	2.4
d.	Prepare periodical sales reports for management.	2.0
e.	Maintain customer credit records.	2.0
f.	Maintain customer files relating to sales.	1.7
g.	Process tax exemption data for individual customers.	1.7
6.	Maintain an attractive parts department.	3.3
a.	Keep parts department clean, neat, and attractive.	3.6
b.	Maintain equipment and furniture.	3.0

7.	Practice good management.		2.9
	a.	Predict seasonal needs for parts and consumable items.	3.2
	b.	Advise management on inventory level for parts and consumable items.	3.1
	c.	Designate excess and obsolete parts.	3.0
	d.	Advise management in determining parts storage space requirements.	2.9
	e.	Set prices for items not on manufacturer's price lists.	2.8
	f.	Advise management on dealership policy for the parts department.	2.5
	g.	Determine price discounts for wholesale and volume sales.	2.5
8.	Develop good work habits and attitudes.		3.6
	a.	Honesty and personal integrity.	3.9
	b.	Follow dealership policies and procedures.	3.8
	c.	Follow directions.	3.8
	d.	Courtesy in dealing with customers.	3.8
	e.	Initiative for job.	3.7
	f.	Dependability and thoroughness in job preferences.	3.7
	g.	Accept and carry out responsibility.	3.7
	h.	Willingness to learn.	3.7
	i.	Harmonious working relationship with co-workers.	3.7
	j.	Clean, neat, and well-groomed appearance.	3.6
	k.	Positive attitude toward job.	3.6
	l.	Enthusiasm for job.	3.6
	m.	Perform work assignments to the best of ability.	3.6
	n.	Punctuality on job.	3.6
	o.	Cooperativeness on the job.	3.6
	p.	Regular attendance.	3.6
	q.	Loyalty to employer.	3.6
	r.	Accept and profit from constructive criticism.	3.5
	s.	Follow dealership safety procedures and policies.	3.5
	t.	Flexibility to change.	3.4
	u.	Willingness to work overtime when needed.	3.4
	v.	Alert customers and others to hazardous situations.	3.4
	w.	Observe situations or conditions creating hazards.	3.4
	x.	Advise management about existing safety hazards, and work to correct them.	3.4
	y.	Careful use of tools.	3.1

FARM EQUIPMENT SALESMAN

Other Titles: Salesman, Farm Machinery Salesman, Farm Equipment and Machinery Salesman.

Job Description:

An individual in this occupation must have a good knowledge of the types of farming and ranching most common locally and the farm power and equipment needs of the farmers and ranchers; they must get along well with customers; know equipment on hand for sale, its price, time required for replacement and source; can appraise value of used equipment; know methods of financing; can determine customers ability to pay; can operate and demonstrate machinery their business offers for sale; possesses knowledge of competition's equipment; can estimate reasonably accurate future demands for farm equipment locally; is usually employed by owner of the business.

Competencies Identified and Validated

N = 41*

Competencies		Weighted Mean**
1.	Have a good knowledge of farming or ranching.	2.8
a.	Know the power and farm equipment needs of local farmers and ranchers to successfully produce crops or livestock.	3.3
b.	Be able to identify equipment problems of local farmers and ranchers.	2.9
c.	Have an acquaintance of many local farmers or ranchers.	2.7
d.	Understand ethnic groups in farming and ranching, (example - Amish, etc.).	2.2
2.	Possess desirable personal qualities and qualifications.	3.4
a.	Be honest and sincere.	3.8
b.	Demonstrate the ability to get along with others.	3.7
c.	Demonstrate a willingness to work.	3.6
d.	Demonstrate a positive job attitude about the organization when working with fellow employees, potential customers, and customers.	3.6
e.	Demonstrate the ability to project a desirable image for the firm.	3.5

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* Responses from 41 Farm Equipment Salesmen and their Work Supervisors in 9 states. Survey conducted by the Department of Agricultural Education, The Pennsylvania State University, University Park, Pennsylvania 16802.

** 4.0 = Essential; 3.0 = Important; 2.0 = Of Some Importance; 1.0 = Not Important; 0 = Does Not Apply.

	f.	Demonstrate the ability to work on their own.	3.5
	g.	Maintain a satisfactory attendance record.	3.4
	h.	Demonstrate a willingness to learn or take supervision.	3.4
	i.	Budget time wisely.	3.3
	j.	Demonstrate the ability to follow directions of supervisor.	3.2
	k.	Demonstrate acceptable personal appearance and personal hygiene.	3.2
	l.	Accept routine tasks without becoming disinterested.	3.0
3.	Practice good human relations.		3.4
	a.	Keep customer's financial records confidential.	3.6
	b.	Be a good listener.	3.4
	c.	See and report the customer's point of view.	3.1
4.	Develop skill in salesmanship and selling.		3.2
	a.	Match customer's real and perceived needs with resources available within the dealership.	3.3
	b.	Identify customer's perceived needs.	3.2
	c.	Identify customer's real needs.	3.2
	d.	Counsel with customer relative to perceived and real needs in a positive and helpful manner.	3.2
	e.	Demonstrate the techniques of successful farm and ranch calls.	3.1
	f.	Demonstrate the use of different types of sales techniques (phone, face-to-face).	3.0
5.	Know ways farm equipment can be financed.		2.7
	a.	Evaluate customer risk and ability to pay.	2.9
	b.	Interpret the financial statement of a customer.	2.8
	c.	Understand taxes and tax advantages.	2.8
	d.	Compute the cost of granting credit.	2.7
	e.	Identify and recommend sources of credit available in the community.	2.6
6.	Accurately appraise value of used equipment.		3.1
	a.	Be reasonably accurate of re-sale value and market.	3.3
	b.	Recognize needed repairs of used equipment and costs to recondition it.	3.1
	c.	Know mark-up of new equipment over cost.	3.0
	d.	Determine if used equipment had good or poor maintenance by owner.	2.9

7.	Have knowledge of equipment on hand and sources of a re-supply.	2.8
a.	Know where equipment for sale is located or stored in the business.	3.3
b.	Know time required for stock replacement.	2.6
c.	Know sources for re-ordering stock.	2.5
8.	Operate properly the equipment offered for sale.	3.1
a.	Know proper operation/adjustment of equipment.	3.1
b.	Demonstrate equipment operation, adjustment, and maintenance.	3.1
9.	Estimate reasonably close future market for farm equipment.	2.9
a.	Know items in greatest demand.	3.0
b.	Be sensitive to market trends.	2.9
10.	Have good knowledge of competition's equipment.	2.6
a.	Know their strong and weak points.	3.1
b.	Know prices of competitor's equipment.	2.5
c.	Have general knowledge of their equipment inventories.	2.2
11.	Know how to effectively advertise and promote the sale of equipment.	2.3
a.	Identify potential customers from market studies.	2.4
b.	Organize and conduct sales meetings.	2.3
c.	Develop displays.	2.3
d.	Prepare advertising for newspapers, radio, and television.	2.0

FLORICULTURE - DELIVERY PERSON

Other Titles: Driver

Job Description:

A Floral Delivery Person is responsible for prompt, reliable delivery service of floral arrangements and plant materials to the customer. His or her duties include: taking customer orders, making sales transactions, and guaranteeing careful handling of floral pieces and plants. He or she is responsible for operating and maintaining the delivery vehicle (safety and repair). This occupation is often seasonal or part-time, depending on the size of the business operation.

Competencies Identified and Validated

N = 36*

Competencies	Weighted Mean**
1. Communication skills.	3.1
a. Exhibit courteous, considerate, and respectful conduct.	3.7
b. Present a clean, conscientious, neat appearance.	3.6
c. Listen effectively, write clearly, and speak effectively in customer relations.	3.4
d. Understand customer's problems and handle complaints with tact.	3.2
e. Keep accurate records.	2.8
f. Make decisions concerning business dealings when necessary and make evaluations of various business endeavors.	1.5
2. Business management.	3.2
a. Be a licensed driver.	4.0
b. Be familiar with customer territory and be capable of successful use of a road map.	3.7
c. Properly plan and execute delivery route with economy and efficiency (gas mileage and time).	3.6
d. Practice courtesy in social and business situations.	3.5
e. Package, label, and review orders for correct delivery (timing/location).	3.5

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* Responses from 36 Floral Delivery Persons in 25 states. Survey conducted by Department of Agricultural Education, University of Rhode Island, Kingston, Rhode Island 02881.

** 4.0 = Essential; 3.0 = Important; 2.0 = Of Some Importance; 1.0 = Not Important; 0 = Does Not Apply.

	f. Make accurate sales transactions and give receipts properly.	2.1
	g. Know price range of flowers and plants.	1.9
	h. Load a delivery truck in proper sequence for delivery, as well as using methods that avoid damage to flowers and plants.#	
3.	Floriculture skills.	2.7
	a. Avoid travel damage; capable of minor adjustments before delivery, and know where and when to leave an arrangement.	3.6
	b. Able to identify possible mistakes in an order.	2.9
	c. Know basic plant identification.	2.2
	d. Advise customers on basic plant care (water, light, temperature) and placement of arrangements when asked.	2.1
	e. Avoid freezing or heat damage to flowers and plants being delivered.#	
	f. Can effectively pick up incoming shipments and prepare live plant material for storage and/or display.#	
4.	Auto/mechanical skills.	3.2
	a. Operate vehicle safely and cautiously.	3.9
	b. Know when to contact mechanic (major repairs).	3.1
	c. Operate, maintain, and make minor repairs on the service vehicle.	2.5
	d. Clean and wash the delivery vehicle.#	

Not included in questionnaire but recommended by some experts surveyed.

FLORICULTURE - SALESPERSON

Other Titles: Designer, Delivery Person, Florist Assistant.

Job Description:

A salesperson deals with people, goods, and services. He or she must have a knowledge and understanding of available plant materials, supplies, and accessories in the shop. His or her duties include advising and recommending arrangements to the customer, demonstrating various floral products, and explaining price differences. He or she must tactfully handle customer requests and complaints, prepare window displays, maintain a clean and appealing showroom, and should understand basic business principles. In a small flower shop this person may also serve as a designer and/or delivery person.

Competencies Identified and Validated

N = 30*

Competencies	Weighted Mean**
1. Communication skills.	3.7
a. Conduct self in a courteous, considerate, and concerned manner.	3.9
b. Be sincere and demonstrate concern in meeting customer needs and interests.	3.8
c. Acquire customer as well as business associates' respect and present a clean, conscientious appearance.	3.7
d. Speak and listen effectively and write clearly.	3.6
e. Handle customer complaints and problems with patience, understanding, and tact.	3.4
2. Business management.	3.2
a. Take orders correctly and be flexible in adjusting or altering items to the customer's specifications.	3.7
b. Advise customers about materials and services available.	3.5
c. Make accurate sales and credit card transactions and keep precise records.	3.5

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* Responses from 30 Floriculture Sales Personnel in 26 states. Survey conducted by Department of Agricultural Education, University of Rhode Island, Kingston, Rhode Island 02881.

** 4.0 = Essential; 3.0 = Important; 2.0 = Of Some Importance; 1.0 = Not Important; 0 = Does Not Apply.

	d.	Understand national and world wide floral delivery procedures.	3.4
	e.	Maintain an attractive showroom and clean work area.	3.3
	f.	Understand shop pricing policy and practices.	3.3
	g.	Assist with advertising and promotional information.	2.0
	h.	Be familiar with delivery routes, time schedule and delivery policies.#	
3.	Floriculture (task-oriented) skills.		3.2
	a.	Know flowers, plants, supplies, and accessories and their availability.	3.6
	b.	Know plant requirements (water, light, temperature) and also "special use" plants and flowers (shade, sun, dry, wet, long/short lived).	3.4
	c.	Give advice to customers on proper plant care and handling, seasonal availability, and price fluctuations.	3.3
	d.	Understand principles of floral design and color.	3.3
	e.	Know basic designs and approximate time it takes to make specific items (for customer information).	3.0
	f.	Responsible for immediate care such as watering, potting, transplanting, cutting, and reconditioning.	2.7
	g.	Know how to receive a shipment of cut flowers and/or plants and how to process them for storage and/or display.#	
	h.	Be able to wrap or package floral designs and plants for carrying by customers and for delivery.#	

# Not included on questionnaire but recommended by some experts surveyed.

FLORICULTURE - FLOWER SHOP MANAGER

Other Titles: Retail Florist.

Job Description:

The flower shop manager directs all operations and supervises personnel. He or she must be knowledgeable in business management, and be able to communicate effectively with the flower shop personnel. The manager must be able to plan and execute sales strategies, exert strong control of inventories, especially of fresh materials. He or she must also be able to plan a budget and operate within it. The ability to direct group efforts is essential.

Competencies Identified and Validated

N = 24*

Competencies		Weighted Mean**
1.	Education and experience.	2.4
a.	Knowledge of floriculture gained through "supervised" work experience in retail floriculture.	3.4
b.	Informal training.	2.9
c.	Formal training (secondary/post secondary school) in floriculture and business management.	2.4
d.	Credits in floriculture/greenhouse management.	2.0
e.	College degree.	1.4
2.	Leadership and communication skills.	3.6
a.	Able to describe, discuss, and demonstrate tasks and responsibilities to employees effectively.	3.8
b.	Be courteous, considerate, and respectful.	3.7
c.	Understand customer/employee relations and promote a harmonious atmosphere.	3.7
d.	Able to handle customer/employee needs and complaints tactfully.	3.7
e.	Plan, organize, and direct work schedules.	3.6
f.	Have a clean, neat appearance.	3.4
g.	Possess effective "people" skills.	3.4
h.	Speak clearly and effectively.	3.4

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* Responses from 24 Floriculture Shop Managers in 21 states. Survey conducted by Department of Agricultural Education, University of Rhode Island, Kingston, Rhode Island 02881.

** 4.0 = Essential; 3.0 = Important; 2.0 = Of Some Importance; 1.0 = Not Important; 0 = Does Not Apply.

3.	Business management.	3.1
a.	Determine prices and pricing policy.	3.6
b.	Be able to buy and use flowers and supplies in such a way as to maintain a balanced inventory with small waste.	3.5
c.	Supervise sales and workroom operations.	3.5
d.	Keep accurate records and use credit properly.	3.4
e.	Capable of training employees.	3.4
f.	Understand and practice effective business procedures.	3.2
g.	Make job estimates accurately.	3.1
h.	Understand insurance and licensing regulations for local, state, and federal governments.	2.8
i.	Have experience in advertising and promotional sales techniques.	2.6
j.	Prepare tax returns, accounting and Social Security records, and understand bookkeeping.	2.3
4.	Floriculture.	2.8
a.	Capable of performing employee's tasks.	3.2
b.	Understand cultural requirements of plants.	2.9
c.	Know the names of all plants and plant materials sold by the shop, their propagation and culture.	2.9
d.	Know operation and techniques of greenhouse management including handling and storage of cut flowers and "greens".	2.6
e.	Understand operation of various greenhouse and shop machinery.	2.4
f.	Possess a high degree of floral design skill.#	

Not included in questionnaire but recommended by some experts surveyed.

RETAIL LANDSCAPE AND GARDEN CENTER SALESPERSON

Job Description:

The Retail Landscape and Garden Center Salesperson has knowledge of both horticultural and business skills. The salesperson possesses desirable personal qualities which enable him/her to effectively represent the business and to successfully complete business transactions. The Salesperson understands the culture of various horticultural crops which may be used by the home gardener. In addition, the employee cares for and maintains plant materials which are marketed in the garden center.

Competencies Identified and Validated

N = 32*

Competencies			Weighted Mean**
1.	Personal qualities and qualifications.		3.2
	a.	Demonstrate the desire to work.	3.5
	b.	Demonstrate the ability to get along with others.	3.4
	c.	Demonstrate the ability to project a desirable image for the business.	3.4
	d.	Maintain a satisfactory attendance record.	3.4
	e.	Demonstrate a willingness to learn.	3.4
	f.	Demonstrate the ability to work independently.	3.2
	g.	Demonstrate the ability to follow directions of supervisor.	3.2
	h.	Demonstrate acceptable personal appearance and personal hygiene.	3.1
	i.	Understand needs of customers.	3.1
	j.	Demonstrate attitudes of customers and discuss with supervisor when necessary.	2.8
2.	Merchandising and selling skills.		2.4
	a.	Approach customer.	3.2
	b.	Provide information and answers.	3.2
	c.	Determine needs of customer.	3.1
	d.	Operate sales equipment (cash register, calculator, charge equipment, receipts).	3.0

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* Responses from 32 Garden Center Sales Persons and Managers in 24 states. Survey conducted by the Department of Agricultural and Extension Education, Department of Horticulture, University of Maryland, College Park, Maryland 20742.

** 4.0 = Essential; 3.0 = Important; 2.0 = Of Some Importance; 1.0 = Not Important; 0 = Does Not Apply.

	e.	Set up new materials on shelves in greenhouse or nursery for sale.	2.7
	f.	Package and/or wrap merchandise for customers.	2.7
	g.	Receive and unpack shipments of new materials.	2.5
	h.	Develop displays.	2.2
	i.	Demonstrate desirable telephone skills.	2.2
	j.	Complete arrangements for financing.	2.0
	k.	Label materials with information concerning care and price.	2.0
	l.	Make inventory of stock.	1.8
	m.	Make delivery arrangements.	1.2
3.		Culture of fruits for the home garden.	2.9
	a.	Recommend type of fertilizer.	3.0
	b.	Diagnose insect and disease problems.	3.0
	c.	Recommend control for insect and disease problems.	3.0
	d.	Identify and be familiar with the care and culture of fruit crops grown locally.	2.8
	e.	Recommend time of year in which pruning should be done.	2.7
	f.	Recommend rates needed for fruit crops.	2.6
	g.	Recommend application time.	2.5
	h.	Describe purpose of pruning.	2.5
	i.	Describe specific pruning techniques including type of cuts to be made and location on plant.	2.5
	j.	Advise customer of federal laws concerning pesticide use.	2.5
	k.	Plant various specimens.	2.5
	l.	Recommend layout of plants for the home fruit garden.	2.3
	m.	Recommend soil preparation techniques.	2.0
4.		Culture of ornamentals for the home garden.	2.8
	a.	Identify and be familiar with the care and culture of trees, shrubs, and vines grown locally.	3.5
	b.	Recommend watering techniques.	3.2
	c.	Identify and be familiar with the care and culture of bedding plants grown locally.	3.1
	d.	Recommend planting practices.	3.1
	e.	Recommend types of fertilizer needed for various plants.	3.0
	f.	Diagnose insect and disease problems.	3.0
	g.	Recommend control for insect and disease problems.	2.9
	h.	Recommend timing of fertilizer applications.	2.9

i.	Identify and be familiar with the care and culture of foliage plants.	2.9
j.	Recommend application rates for fertilizers.	2.8
k.	Recommend cultural practices for interior gardening, such as watering and fertilizing.	2.7
l.	Recommend timing of pruning practices.	2.7
m.	Describe purpose of various types of pruning.	2.6
n.	Advise consumer of federal laws concerning pesticide use.	2.4
o.	Describe specific pruning techniques including type of cuts to be made and location on plant.	2.4
p.	Recommend desirable environmental conditions needed for interior gardening.	2.2
q.	Recommend liming procedures.	2.2
r.	Identify and be familiar with the care and culture of specialty greenhouse crops, such as poinsettias and lilies.	2.2
5.	Culture of vegetables for the home graden.	2.7
a.	Identify and be familiar with the care and culture of vegetable crops grown locally.	2.9
b.	Recommend varieties suitable for the particular location.	2.8
c.	Recommend types of fertilizers needed for vegetable crops.	2.8
d.	Recommend planting procedures.	2.8
e.	Recommend watering practices.	2.8
f.	Diagnose insect and disease problems.	2.8
g.	Prescribe control for insect and disease problems.	2.8
h.	Recommend application rates for fertilizers.	2.7
i.	Recommend timing of fertilizer applicators.	2.7
j.	Describe use of soil additives such as manure.	2.7
k.	Recommend weed control practices.	2.4
l.	Advise consumer of federal laws concerning the use of pesticides.	2.4
m.	Recommend liming practices.	2.3
6.	Turf practices for the home gardener.	2.8
a.	Recommend type of fertilizer to be used for turf.	3.0
b.	Recommend application time.	2.9
c.	Recommend rate of application.	2.9
d.	Recommend weed control program.	2.9
e.	Recommend control for insect and disease problems.	2.9

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f.	Describe seeding procedures.	2.9
g.	Diagnose insect and disease problems.	2.8
h.	Identify and be familiar with turf types grown locally.	2.8
i.	Describe purpose and use of soil conditioners.	2.7
j.	Advise consumer of federal laws concerning the use of pesticides.	2.4
k.	Recommend liming practices.	2.3
l.	Describe sodding techniques.	2.3
m.	Describe plugging procedures.	1.9
7.	Garden shop maintenance skills.	2.7
a.	Follow safety recommendations when applying chemicals.	3.2
b.	Water plant material with hose.	3.1
c.	Apply fertilizer to greenhouse material.	2.9
d.	Diagnose insect problems.	2.9
e.	Diagnose disease problems caused by bacteria, fungi, etc.	2.8
f.	Diagnose disease problems or damage caused by poor environmental conditions.	2.8
g.	Prescribe control for insect and disease problems.	2.8
h.	Apply fertilizer to nursery material.	2.8
i.	Report greenhouse plant material.	2.8
j.	Prune and shape nursery material.	2.7
k.	Provide winter protection for nursery material.	2.7
l.	Containerize nursery material.	2.6
m.	Prepare soil mixes.	2.5
n.	Prune and shape greenhouse crops.	2.4
o.	Apply pesticides in greenhouse and nursery.	2.4
p.	Operate automatic watering system.	2.2
q.	Sterilize soil mixes.	2.0

NURSERY SALESPERSON - RETAIL

Job Description:

Nursery Salespersons are directly responsible to office managers. They must be able to identify all the plant material produced and/or sold by their firm and appropriate uses for it. They must know sizes and grades of stock and current prices. They may advise customers concerning planting techniques and cultural practices required for successful growing of plant materials they sell. They may arrange displays of plants and related items, and prepare advertising announcements for various media. They must have sales ability and enjoy dealing with customers. Most Nursery Salespersons have had nursery experience and training beyond the high school level.

Competencies Identified and Validated

N = 41*

Competencies	Weighted Mean**
1. Demonstrate knowledge of nursery retail outlet products.	3.0
a. Identify nursery plants.	3.7
b. Advise customer of correct manner of planting and caring for plant materials.	3.6
c. Recognize common plant insect and disease problems and advise customers concerning insecticide and fungicide use.	3.3
d. Advise customers concerning fertilizer types, rates, and methods of application for various plants.	3.3
e. Explain environmental requirements of various plants.	3.2
f. Explain appropriate uses and qualities of nursery stock.	3.2
g. Recommend appropriate herbicides.	3.1
h. Explain values of various mulching materials and soil amendments.	3.0
i. Explain plant differences according to USA standard grades.	2.0
j. Explain application and care of garden tools and equipment.	2.0
2. Demonstrate effective sales techniques.	3.0

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* Responses from 41 Nursery Sales Outlet Personnel in 28 states. Survey conducted by Division of Resource Management, Agricultural Education, West Virginia University, Morgantown, West Virginia 26506.

** 4.0 = Essential; 3.0 = Important; 2.0 = Of Some Importance; 1.0 = Not Important; 0 = Does Not Apply.

a.	Greet customers in courteous manner.	3.8
b.	Close sales efficiently.	3.6
c.	Identify wants and needs of customers.	3.5
d.	Fill out appropriate sales forms.	3.3
e.	Gain attention and interest of customer.	3.3
f.	Handle customer objections and complaints.	3.2
g.	Direct attention to related or substitute products.	3.1
h.	Make change.	2.8
i.	Handle complaints after sale is made.	2.8
j.	Use cash register.	2.7
k.	Follow up sales to determine customer satisfaction.	2.6
l.	Packs and/or wraps merchandise.	2.3
m.	Take orders by telephone.	2.3
n.	Solicit sales by telephone.	1.5
3.	Price stock (figure margins and markup).	2.1
4.	Maintain inventory of stock and related items.	2.3
5.	Prepare advertising announcements for various media.	1.1
a.	Prepare newspaper advertisments.	1.2
b.	Prepare mailers for local distribution.	1.0
c.	Prepare radio commercials.	1.0
d.	Prepare T.V. commercials.	.9
6.	Prepare merchandise displays.	2.8
a.	Remove wilted stock from displays.	3.4
b.	Present merchandise in attractive displays.	2.9
c.	Display seasonal promotional items.	2.8
d.	Suggest related items to customers with related merchandise displays.	2.8
e.	Change displays frequently.	2.7
f.	Arrange outside displays to attract customers.	2.7
g.	Display merchandise as it can be used.	2.6
h.	Include sales information in displays.	2.6

FORESTRY TECHNICIAN

Other Titles: Forest Technician, Log Scaler, Field Service Technician, Associate Forester, Associate Procurement Forester.

Job Description:

The Forest Technician is a person competent to occupy a responsible position in the line of authority between the skilled forest workers and the professional forester. The Forest Technician differs from the semi-skilled forester (aide) in knowledge of forestry theory and methods and has a more limited or specialized background and in the use of technical skills in support of forestry activities than a forester. The majority of Forest Technicians are employed by state and federal governments. Others work for private industry and forest owners. Examples of the type of work forest technicians perform are: forest surveying that includes boundary problems, deed research, campground, and pond layout; road location and reconnaissance, elevation and drainage systems; timber cruising and volume estimating; forest inventory work; timber sale layout and marking; timber buying; log and pump scaling; timber stand improvement; nursery cultural work in forest nurseries; fire control and assisting in presuppression and suppression activities; forest insect and disease observation and control; and park and recreation management of private and public campground and parks.

Competencies Identified and Validated

N = 35*

Competencies		Weighted Mean**
1.	Survey timber land and other areas.	2.9
a.	Interpret and use aerial photographs, topographic, and planimetric maps.	3.6
b.	Establish boundary lines.	3.4
c.	Locate logging and access roads.	3.0
d.	Perform semi-accurate, long distance survey approximations.	2.7
e.	Establish elevations for roads and drainage systems.	2.7
f.	Locate areas for dams, impoundments, ponds, and recreational uses.	2.1

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* Responses from 35 Forestry Technicians and their work supervisors in 20 states. Survey conducted by Department of Agricultural Education, The Pennsylvania State University, University Park, Pennsylvania 16802.

** 4.0 = Essential; 3.0 = Important; 2.0 = Of Some Importance; 1.0 = Not Important; 0 = Does Not Apply.

2.	Prepare maps.		3.3
	a.	Perform neat, accurate mapping work.	3.6
	b.	Interpret aerial photographs to determine areas and locations.	3.5
	c.	Use various, simple drafting instruments.	3.3
	d.	Calculate areas from survey data.	3.1
	e.	Use survey data to prepare maps.	3.0
3.	Cruise timber.		3.3
	a.	Measure tree heights and diameters.	3.7
	b.	Interpret aerial photographs to identify forest cover types, forest classes and areas.	3.4
	c.	Lay out sample plots or strips.	3.4
	d.	Calculate volume of stands.	3.4
	e.	Determine saleable volume in forest products.	3.4
	f.	Keep records.	3.4
	g.	Mark timber for sales or for partial cutting.	3.4
	h.	Locate logging roads and aid in their construction and maintenance.	3.2
	i.	Measure tree growth.	3.1
	j.	Prepare inventory reports and stand analysis data.	3.1
	k.	Recommend logging methods.	2.7
4.	Supervise timber sales.		3.0
	a.	Create and maintain safety attitudes and practices.	3.5
	b.	Compute gross and net volumes.	3.2
	c.	Scale forest products.	3.0
	d.	Check scales for possible errors.	2.9
	e.	Interpret and enforce timber sale contracts.	2.8
	f.	Grade forest products.	2.7
5.	Perform timber stand improvement work.		2.9
	a.	Create and maintain safety attitudes and practices.	3.3
	b.	Instruct and assist crews in work methods.	3.1
	c.	Keep records.	3.1
	d.	Demonstrate proper cultural methods.	2.9
	e.	Prepare work layout and schedule.	2.7
	f.	Procure and mix chemicals.	2.4
6.	Plant trees and collect seeds.		2.7
	a.	Assist in planning reforestation work.	3.0
	b.	Protect planting stock.	2.9
	c.	Follow planting plan.	2.9
	d.	Plan and perform erosion control and recreational construction landscape planting.	2.6

	e.	Prepare planting site.	2.5
	f.	Procure planting stock.	2.5
7.		Perform nursery cultural work.	2.2
	a.	Keep records.	2.4
	b.	Hire temporary personnel.	2.3
	c.	Supervise seedling production, lifting, packaging, and shipping.	2.3
	d.	Treat seeds.	2.2
	e.	Conduct seed tests.	2.1
	f.	Calculate and analyze data.	1.8
8.		Control forest insects and disease.	3.0
	a.	Recognize and report insect and disease damage.	3.4
	b.	Prepare maps of infested areas.	3.3
	c.	Assist in insect and disease control measures.	3.1
	d.	Record, calculate, and analyze data.	2.8
	e.	Conduct experiments.	2.3
9.		Prevent and control forest fires.	2.6
	a.	Locate and report fires.	3.2
	b.	Serve as fire crew leader.	3.1
	c.	Operate fire tools and equipment.	3.0
	d.	Submit fire reports.	2.9
	e.	Assist in determining causes of fires and best control methods.	2.8
	f.	Maintain fire control supplies and equipment.	2.7
	g.	Dispatch fire crews.	2.6
	h.	Educate communities in fire prevention.	2.5
	i.	Measure fire characteristics.	2.4
	j.	Record fire crew time and material inventories.	2.4
	k.	Test best methods and materials for fire prevention and control.	2.3
	l.	Recruit, train and supervise forest fire wardens and crews.	2.2
	m.	Display a basic knowledge of air craft capacity for fire fighting methods.	1.9
10.		Administer outdoor recreational facilities.	2.5
	a.	Enforce rules and regulations.	2.6
	b.	Assist in planning, construction, operation, and maintenance of trails, campsites, etc.	2.4
	c.	Conduct public relations program.	2.4
	d.	Perform fire watch and control.	2.4
11.		Perform watershed practices.	2.5
	a.	Control flood run-off to reduce soil damage.	2.6

	b. Maintain soil stability.	2.6
	c. Improve vegetative cover.	2.5
12.	Manage fish and wildlife food habitat.	1.9
	a. Assist in wildlife habitat improvement.	2.4
	b. Supervise work crews.	2.3
	c. Maintain daily crew records.	2.2
	d. Assist in taking wildlife census.	2.0
	e. Perform research studies and experiments.	1.9
	f. Supervise controlled hunting and fishing.	1.8
	g. Manage animal use of grazing lands.	1.7
	h. Reseed grazing lands.	1.7
	i. Stock, rear, and feed fish and game species.	1.6
	j. Keep hunting and fishing records.	1.5
	k. Patrol restricted areas.	1.4
13.	Perform public relations work.	2.3
	a. Explain forestry objectives to individuals and groups.	3.1
	b. Prepare informative reports.	2.8
	c. Prepare literature for public use.	1.9
	d. Obtain and interpret pertinent information from public records.	1.9
	e. Write news releases.	1.8
14.	Operate equipment and machinery.	2.6
	a. Hold a valid operator's license where necessary.	3.3
	b. Use safety standards relating to the operation of a particular piece of machinery.	3.1
	c. Recognize malfunctions in equipment.	2.9
	d. Adjust equipment under field conditions for maximum efficiency.	2.8
	e. Become familiar with operator's manual for each piece of equipment.	2.7
	f. Operate machinery and equipment under a variety of field conditions.	2.7
	g. Service machinery and equipment according to operator's manual.	2.5
	h. Maintain a daily log of number of hours each piece of equipment is used.	2.5
	i. Maintain records of maintenance and repair of machinery and equipment.	2.4
	j. Attach accessory equipment to basic power unit.	2.1
	k. Prepare machines and equipment for storage.	1.9

LAND USE PLANNING AIDE

Other Titles: Surveyor's Apprentice, Engineering Aide, Field Engineering Aide, Party Chief.

Job Description:

The Land Use Planning Aide, under the direction of the survey party chief, sets up and operates surveying equipment; acts as a rodman and chainman; takes field notes and makes field sketches; measures distances, angles and elevations between stadia points; collects data pertinent to field studies; conducts field investigations to assure development concurs with project uses; and submits reports on the findings.

Competencies Identified and Validated

N = 34*

Competencies	Weighted Mean**
1. Set up surveying equipment.	2.8
a. Adjust and center tripod over points using plumb bob.	3.0
b. Level instrument parallel to datum plane using levelling bubble.	2.9
c. Carry and set stakes.	2.8
d. Hold level-rod or stadia-rod.	2.8
e. Secure instrument to tripod.	2.8
f. Shield and carry optical equipment.	2.7
2. Determine area measurements.	2.9
a. Measure distances between points with transit and rod, cloth or steel tape, or surveyor's chain.	3.2
b. Use photo-scales.	3.0
c. Locate ground positions relative to maps.	2.9
d. Use compass, aerial photographs, and topographic maps to pin-point positions.	2.8
e. Record information on aerial photographs or in notes.	2.8
f. Select turning points in consideration of immediate terrain and of the necessity for balancing shots.	2.8

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* Responses from 34 Land Use Planning Aides in 15 states. Survey conducted by Department of Agricultural Education. The Pennsylvania State University, University Park, Pennsylvania 16802.

** 4.0 = Essential; 3.0 = Important; 2.0 = Of Some Importance; 1.0 = Not Important; 0 = Does Not Apply.

3. Act as a rodman.	2.8
a. Mark and record measuring points using paints, stake, keel, or tacks.	2.9
b. Move rod, or target on rod, following instructions of instrumentman.	2.8
c. Call out readings to notekeeper, or write station number and reading in notebook.	2.7
4. Act as chainman.	2.4
a. Measure distances between survey points using cloth or steel tape, or surveyor's chain.	2.9
b. Use tape supports or tension meters.	2.6
c. Set taping arrows.	2.4
d. Check tape calibration by comparison with master tape.	2.3
e. Cut and clear brush from survey line.	2.3
f. Set traffic warnings.	2.3
g. Act as a flagman.	2.1
5. Act as instrumentman.	2.8
a. Measure elevations using altimeter, level, or transit.	2.9
b. Measure angles between survey points using compass or transit.	2.9
c. Measure distances between survey points using transit.	2.7
d. Direct rodman by voice or hand signals.	2.7
e. Maintain surveying instruments.	2.6
6. Act as notekeeper.	2.9
a. Record all distances, angles and elevations measured.	3.1
b. Make simple arithmetic calculations.	3.1
c. Calculate simple closures of level circuits and slope corrections.	3.1
d. Draw field sketches of area using map symbols.	2.9
e. Solve simple trigonometric problems.	2.7
f. Prepare daily record of activities.	2.7
g. Record corrections for declination and climatic factors.	2.6
7. Compile data for planning studies.	2.7
a. Gather area maps.	2.9
b. Relate aerial photographs to topographic maps.	2.9
c. Compile economic, geographic, and other literature pertinent to area.	2.7
d. Gather name and boundary information.	2.7
e. Report on area movement concerning traffic flows, population, business, and agriculture.	2.4

	f. Observe and report on available facilities and needs for housing, parking, recreation, and education.	2.2
8.	Perform clerical office work.	2.8
	a. Transpose field notes and sketches to topographic maps.	2.8
	b. Transpose approved field notes to map symbols.	2.8
	c. Aid in preparing tracing of topographic area.	2.8

CAMPGROUND MANAGER

Other Titles: Camp Coordinator, Resident Manager, Superintendent of Parks, Camping Director, Park Maintenance Supervisor.

Job Description:

Supervises the campground maintenance person's weekly work schedule, prepares the weekly camp programs, orders supplies, manages the campground accounts and records, makes periodic reports, schedules camp sites, monitors the safety and health of camp visitors, enforces campground regulations, interprets campground policies and serves as a public relations person for the campground.

Competencies Identified and Validated

N = 32*

Competencies	Weighted Mean**
1. Supervises activities of the campground maintenance person and temporary field personnel.	3.4
a. Interpret directions and plans.	3.7
b. Maintain open communications with employees and administrators.	3.6
c. Enforce employee safety regulations and standards.	3.5
d. Plan and supervise work schedules.	3.5
e. Demonstrate a general understanding of the tasks performed by all employees under his supervision.	3.5
f. Train new personnel.	3.4
g. Interpret appropriate federal, state, and local labor laws.	3.3
h. Maintain working conditions under existing contract agreements.	3.2
2. Schedule the weekly campground activities of visitors and employees.	1.7
a. Prepare daily and long range maintenance plans.	3.0
b. Call in private contractors when necessary.	2.5
c. Provide local entertainment.	1.2
d. Invite guest craftsmen to the camp.	1.2
e. Prepare craft workshops.	1.1

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* Responses from 32 Campground Managers in 20 states. Survey conducted by Department of Agricultural Education. The Pennsylvania State University, University Park, Pennsylvania 16802.

** 4.0 = Essential; 3.0 = Important; 2.0 = Of Some Importance; 1.0 = Not Important; 0 = Does Not Apply.

	f. Schedule camp sporting events.	1.1
3.	Order weekly campground supplies.	2.6
	a. Order parts for camp equipment, including those recommended by the camp maintenance person.	3.0
	b. Maintain camp food supplies.	2.5
	c. Maintain camp medical supplies.	2.3
4.	Manage the campground accounts and records and make periodic reports.	2.7
	a. Keep weekly records of campground money.	3.0
	b. Account for all campground money.	3.0
	c. Make periodic reports to the campground owner and discuss camp finances.	2.9
	d. Handle all incoming money from the campground facilities.	2.8
	e. Sell the camp visitors overnight stickers.	1.7
5.	Schedule camp site use.	2.8
	a. Explain the policies of the campground.	3.3
	b. Check their arrival and departure times.	2.8
	c. Assign campers to specific camp sites.	2.7
	d. Give the campers a map of the campgrounds.	2.3
6.	Monitor the safety and health of camp visitors.	2.8
	a. Use established fire-fighting techniques.	3.2
	b. Protect the campers from dangerous animals and other hazards.	3.1
	c. Recognize the need for medical assistance.	3.1
	d. Be certified to administer first-aid.	2.6
	e. Recognize certain signs of physical fatigue.	2.0
7.	Enforce campground regulations.	3.1
	a. Explain camp rules when necessary.	3.4
	b. Call local or state police for assistance.	3.3
	c. Direct camp visitors to specific areas.	3.0
	d. Patrol campground areas.	2.9
8.	Perform public relations work.	2.0
	a. Explain general program and specific objectives of programs to individuals and groups.	2.7
	b. Prepare informative reports and other literature for public use.	2.3
	c. Act as a resource person in program area.	2.0
	d. Write news releases.	1.7
	e. Participate in radio and TV programs.	1.2

HUNTING AND FISHING GUIDE

Other Titles: Camp Guide, Packer, Outfitter, Hunting Preserve Guide, Professional Guide.

Job Description:

This person is involved in planning and supervising hunting and fishing trips. The guide prepares itineraries, travel routes, equipment, food and provisions. The individual arranges for, and operates motor vehicles and watercraft, or handles horses used during trips. This person understands hunting and fishing laws, firearms use, and tackle and gear equipment needs. The guide selects campsites, prepares meals, and administers first-aid as part of the job.

Competencies Identified and Validated

N = 31*

Competencies	Weighted Mean**
1. Plan hunting and fishing trips.	2.9
a. Organize and lead the hunting or fishing parties.	3.6
b. Select specific areas for hunting or fishing to be done.	3.5
c. Estimate needs and select proper provisions to be used.	3.1
d. Map and plan trip routes.	2.8
e. Obtain proper licenses for members of the party.	2.8
f. Plan trip itineraries.	2.7
g. Arrange for lodging or camping areas.	2.7
h. Plan and provide methods of transportation.	2.6
i. Estimate cost of trips.	2.3
2. Use and understand firearms, gear, tackle, and other equipment used on trips.	3.2
a. Supervise safe use of equipment demonstrating proper safety rules of hunting and fishing.	3.6
b. Recommend the proper equipment to be used for the type of hunting or fishing to be done.	3.4

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* Responses from 31 Hunting and Fishing Guides from 18 states. Survey conducted by Department of Agricultural Education, The Pennsylvania State University, University Park, Pennsylvania 16802.

** 4.0 = Essential; 3.0 = Important; 2.0 = Of Some Importance; 1.0 = Not Important; 0 = Does Not Apply.

	c. Demonstrate proper use of equipment.	3.1
	d. Make minor repairs on equipment broken on trip.	2.8
3.	Understand state hunting and fishing laws.	3.6
	a. Supervise the taking of proper species, size, and limits of fish and game.	3.5
	b. Keep aware of new law changes.	3.8
	c. Observe and prevent party members from violating laws.	3.6
	d. Explain the proper type of equipment that legally can be used in an area.	3.6
	e. Have a knowledge of public and private lands, and identify types of legal game.	3.6
	f. Inform group on the legality of using dogs, horses, or hunting birds in specific areas.	3.0
4.	Operate water craft and all terrain vehicles.	3.4
	a. Display proper safety habits in operation of craft and vehicles.	3.6
	b. Possess operator's license for all types of craft and vehicles to be used.	3.5
	c. Respect all boating laws.	3.5
	d. Maintain watercraft and vehicles in working order.	3.3
	e. Load all equipment properly.	3.3
	f. Read and interpret maps to obtain bearing or directions.	3.3
	g. Service equipment and make minor adjustments on trip.	3.2
5.	Display basic knowledge of common fish and game animals.	3.0
	a. Identify all species and sexes of desired game animals in area.	3.5
	b. Identify most desired food and habitat of fish and game.	3.1
	c. Display basic understanding of life cycle and mating habits.	2.7
	d. Identify game animals and their predators from tracks and other signs.	2.7
6.	Use pack animals and saddle stock.	2.8
	a. Demonstrate proper handling, care, and management of livestock and related equipment.	3.0
	b. Equip livestock with pack supplies and equipment for travel over all types of terrain.	2.7

7.	Maintain safety and health of the party.	2.8
a.	Recognize signs of and prevent physical fatigue.	3.2
b.	Be certified to administer first-aid.	3.1
c.	Display proper life saving technique in aquatic situations.	3.0
d.	Identify injuries and sicknesses and treat properly.	2.9
e.	Display survival methods used on hunting and fishing trips.	2.8
f.	Organize search parties.	2.5
g.	Identify proper water and nature edible plants.	2.0
8.	Select and set up campsites.	2.8
a.	Prepare meals.	2.9
b.	Select proper sites for placing camps.	2.8
c.	Set up tents and other shelters.	2.8
9.	Perform public relations work.	2.3
a.	Explain trip programs and objectives to individuals and groups.	2.8
b.	Estimate costs and prepare bills.	2.5
c.	Prepare informative reports and nature talks for public.	1.6
10.	Use correct field dressing and preserving techniques of game.	3.5
a.	Field dress and preserve game.	3.5

CONSERVATION OFFICER

Other Titles: Municipal Police Instructor, Game Protector, Game Warden, Waterways Patrolman, Game Conservation Officer, District Game Protector.

Job Description:

Patrols assigned area to prevent game law violations, enforces game laws, investigates reports of damages to crops and property by wildlife. Investigates reports of fish and game law violations and issues warnings and citations. Serves warrants. Makes arrests and prepares and presents evidence in court actions. Collects and reports information on condition of fish and wildlife in their habitat, availability of game food and cover, and suspected pollution of waterways. Recommends stocking procedures, limits seasons, and opening dates. Arranges for the disposition of game killed accidentally or illegally. Interprets fish and game laws, rules, and regulations to sportsmen in the field and addresses group meetings. Promoteş and assists in the hunter program. Enlists sportsmen associations in programs such as lake and stream rehabilitation and game habitat improvement. Supervises and advises game feeding and propagation programs. Supervises the maintenance of equipment and buildings within a specific district. Trains workers in the operation of equipment used in district land management programs. Recruits and trains assistant conservation officers and/or labor crews. Maintains an office with complete files in all reports, records, and correspondence applicable to assigned district. Coordinates and enlists leases with land owners for land open to public activities. Conducts an effective predator control program. Usually employed by a state governmental agency.

Competencies Identified and Validated

N = 42*

Competencies	Weighted Mean**
1. Patrol assigned area.	3.8
a. Apprehend violators and take appropriate action.	3.9
b. Prevent game law violations.	3.8
c. Arrest violators.	3.8
2. Prepare cases for prosecution.	3.6

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* Responses from 42 Conservation Officers in 12 states. Survey conducted by Department of Agricultural Education, The Pennsylvania State University, University Park, Pennsylvania 16802.

** 4.0 = Essential; 3.0 = Important: 2.0 = Of Some Importance; 1.0 = Not Important; 0 = Does Not Apply.

a.	Obtain evidence for legal action.	3.9
b.	Testify in legal action.	3.8
c.	Investigate hunting accidents.	3.7
d.	Understand previous legal cases and their findings.	3.5
e.	Obtain and serve warrants.	3.5
f.	Consult a legal opinion.	3.2
3.	Collect and record information on wildlife in the area assigned.	2.7
a.	Inventory species of wildlife in the assigned area.	2.8
b.	Determine physical conditions of wildlife.	2.7
c.	Evaluate wildlife habitat.	2.7
d.	Take census of wildlife killed in the assigned area.	2.7
e.	Inventory available feed for wildlife.	2.6
4.	Maintain wildlife population in assigned area.	2.2
a.	Recommend stocking procedures.	2.5
b.	Recommend hunting seasons to include limits and opening dates.	2.5
c.	Recommend maintenance of feeds and habit.	2.2
d.	Recommend placement of game refuges.	1.6
5.	Dispose of game animals killed accidentally or illegally.	2.6
a.	Pick up animals to be disposed.	2.8
b.	Contact companies or organizations to utilize the animal.	2.6
c.	Recommend placement of animal crossing signs.	2.5
6.	Interpret fish and game laws and rules and regulations.	3.6
a.	Explain game laws to individuals.	3.7
b.	Address sportsman's groups.	3.5
c.	Speak to non-hunting groups.	3.5
7.	Coordinate the hunter safety program.	3.0
a.	Train hunter safety instructors.	3.2
b.	Certify persons who have completed hunter safety program.	3.0
c.	Conduct classes in hunter safety.	2.9
d.	Distribute hunter safety information.	2.8
8.	Provide public relations for state game commission.	2.7
a.	Address audience interested in wildlife.	3.2
b.	Participate in radio and television programs.	2.9
c.	Maintain exhibits at fairs, sportsman's shows, and schools.	2.8

	d.	Assist sportsman's clubs in lake, stream, and game land improvement.	2.8
	e.	Write newspaper articles for publication.	2.7
	f.	Assist sportsmen in game feeding projects.	2.7
9.		Train deputy game wardens, part-time labor crews, and part-time equipment operators.	2.8
	a.	Conduct new worker orientation.	2.9
	b.	Conduct classes and field experiences for subordinates.	2.9
	c.	Supervise on-job training.	2.8
	d.	Recommend changes in training program.	2.8
	e.	Evaluate training programs.	2.7
10.		Maintain a district office.	3.5
	a.	Communicate with supervisor and clientele.	3.6
	b.	Keep complete files on all reports.	3.5
	c.	Maintain records on all field surveys.	3.3
11.		Obtain leases with land owners for land open to public activities.	2.5
	a.	Maintain farm-game safety zone programs.	2.6
	b.	Distribute game commission signs and posters for farmers.	2.6
	c.	Advise land owners or operators on planting and maintaining game habitats.	2.4
12.		Conduct a wildlife control program.	2.1
	a.	Trap or dispose predatory animals.	2.1
	b.	Trap or move excess game animals to areas where animals are deficient.	2.1
13.		Supervise the wildlife permit system.	1.8
	a.	Issue permits for taxidermists, fur buyers, propagators.	2.0
	b.	Inspect and issue permits for regulated shooting grounds.	1.9
	c.	Issue permits for game land timber sales.	1.4

FOREST INSECT RANGER

Job Description:

This is a sub-professional field work position. This position is assigned to a specific area and is responsible for inspecting and reporting on the disease and insect infested condition of forest and shade trees. When field identification is not possible, samples are submitted to a laboratory for analysis. Based upon results of surveys, the Forest Insect Ranger is expected to recommend appropriate eradication and control measures and must be able to accurately define the geographic limits of infestations for control by aerial spraying and other mechanical means. The worker in this position participates in considerable public contact work in acquainting landowners, citizens, and public officials with the nature of the control programs to be employed.

Competencies Identified and Validated

N = 35*

Competencies		Weighted Mean**
1.	Ability to orient self in woods.	3.9
2.	Ability to identify trees.	2.9
	a. By common Name.	3.5
	b. By buds and twigs.	3.1
	c. By bark.	3.0
	d. By shape of tree.	3.0
	e. By seeds.	2.8
	f. By scientific name.	2.5
	g. By aerial photography.	2.5
3.	Ability to identify diseases of trees.	3.1
	a. By common name.	3.5
	b. By damage caused.	3.5
	c. By specimen in the hand.	3.3
	d. Fungal disease.	2.9
	e. By scientific name.	2.8
	f. Bacterial disease.	2.8
	g. Viral disease.	2.8
4.	Ability to identify forest insect pests.	3.3

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* Responses from 35 Forest Insect Rangers in 22 states. Survey conducted by Occupational Education Program, University of New Hampshire, Durham, New Hampshire 03824.

** 4.0 = Essential; 3.0 = Important; 2.0 = Of Some Importance; 1.0 = Not Important; 0 = Does Not Apply.

	a.	By common name.	3.5
	b.	By the damage caused.	3.5
	c.	In adult stage.	3.4
	d.	In nymph or larval stage.	3.4
	e.	By specimen in the hand.	3.3
	f.	In egg stage.	3.2
	g.	By scientific name.	2.8
5.	Pesticide use.		3.0
	a.	Ability to read and understand pesticide labels.	3.8
	b.	Ability to determine the proper pesticide and the proper application of pesticide to control forest pests.	3.6
	c.	Knowledge of the current local, state, and federal pesticide application laws.	3.6
	d.	Ability to operate a pesticide application device safely.	3.5
	e.	Knowledge of the classification of pesticides.	3.3
	f.	Ability to obtain a commercial pesticide applicators license.	3.2
	g.	Knowledge of the capabilities of aerial application of pesticides.	3.1
6.	Ability to quantify and define forest damage.		3.4
	a.	By plot work.	3.4
	b.	By map making.	3.0
	c.	By mensuration.	2.9
	d.	By photogrammetry.	2.7
	e.	By biometrics.	2.5
7.	Ability to keep accurate records.		3.4
8.	Ability to communicate effectively with the public.		3.3
	a.	Orally.	3.3
	b.	Written.	3.2
9.	Ability to work under a minimum of supervision.		3.3
10.	Ability to organize a days work.		3.5
11.	Possess a valid motor vehicle license.		3.7
12.	Ability to operate, maintain and repair small engines and pumps.		2.5